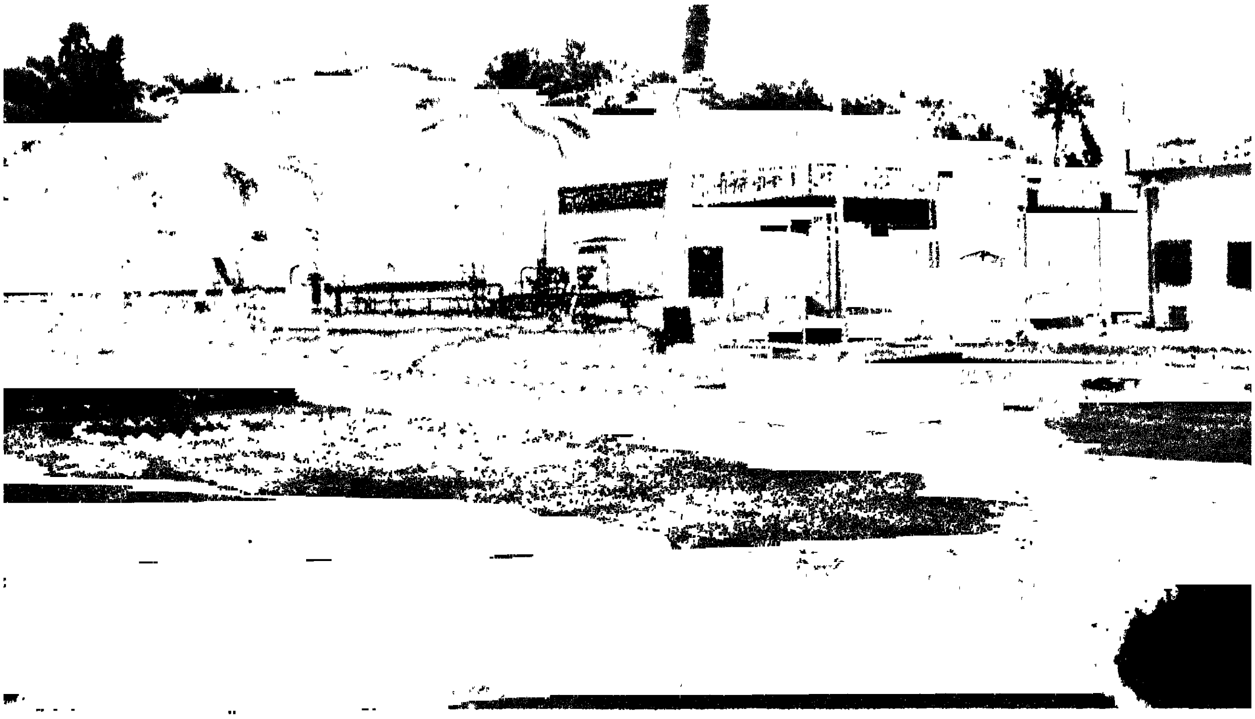
Eco-Rating Exercise – Koyali Ahmedabad Oil Product Pipeline, Gujarat (Surveillance Audit)

Prepared for

Indian Oil Corporation Limited



TERI Project Report No. 2002EE63

Eco-rating exercise – Koyali Ahmedabad Oil Product Pipeline Gujarat (Surveillance Audit)

Prepared for **Indian Oil Corporation Limited**

TERI Project Report No. 2002EE63

© Tata Energy Research Institute 2002

A suggested format for citing this report is as follows.
TERI. 2002
Eco-Rating Exercise-Koyali Ahmedabad. Oil Product Pipeline, Gujarat
(Surveillance Audit)
New Delhi: Tata Energy Research Institute. 18 pp.
[TERI Project Report No. 2002EE63]

For more information about this report, please contact

Centre for Environment Studies
Team Members: T S Panwar & Harpreet S. Kandra
TERI
Darbari Seth Block
Habitat Place, Lodhi Road
New Delhi – 110 003, India
Telephone +91 11 468 2100 or 468 2111
E-mail mailbox@teri.res.in
Fax +91 11 468 2144 or 468 2145
Web site www.teriin.org

Table of contents

Assessment Report 1
Operation & maintenance 5
Pollution 9
Resource intensity 11
Worker environment 12
Contingency management systems 13
Environmental management systems 15

Annexures
Rating Construct

Team members

Dr T S Panwar	Fellow
Mr H S Kandra	Research Associate

Acknowledgement

We would like to express our gratitude and thanks to Mr. O.P. Soni and Mr. B G Reddy for their active support to this exercise. We would also like to thank Mr. G.S. Singh, Ms. Sheela Pillai and Mr. H. G. P. Tripathi for their support and cooperation during our visit to the facility.

List of abbreviations

AAQ	Ambient Air quality
APCD	Air Pollution Control Device
API	American Petroleum Institute
ATF	Aviation Turbine Fuel
CMP	Contingency Management Plan
CP	Cathodic Protection
CTE	Coal Tar Enamel
DHPPA	Diesel High Pour Point Army Grade
EIA	Environmental Impact Assessment
ERS	Eco-Rating System
GIS	Geographical Information Systems
GR	Gujarat Refinery
GPCB	Gujarat Pollution Control Board
HOV	Hand Operated Valve
HSD	High Speed Diesel
IOC	Indian Oil Corporation Ltd
IPS	Intelligent Pigging Survey
ISO	International Organization for Standardisation
KAPL	Koyali Ahmedabad Pipeline
LPM	Line Patrolmen
MMTPA	Million Metric Tonnes Per Annum
MOV	Motor Operated valve
MS	Motor Spirit
ONGC	Oil and Natural Gas Corporation
PSP	Pipe to Soil Potential
PIL	Public Interest Litigation
ROW	Right Of Way
RSP	Respirable Suspended Particles
SAP	Software Application Package
SBT	Sabarmati Terminal
SCADA	Supervisory Control and Data Acquisition systems
SKO	Super Kerosene Oil
SPM	Suspended Particulate Matter
USEPA	United States Environmental Protection Agency

List of annexures

---

1. Route map sketch of KAPL
2. Layout of different pipelines running along Koyali Ahmedabad Pipeline
3. Pearson survey and Soil Resistivity Survey reports
4. CP report & PSP profile reports
5. Consolidated CP report and %age Power availability
6. Details of anode bed renovation in June'2002
7. Report on internal corrosion monitoring
8. Pigging report
9. Daily line patrolling report
10. Officers patrolling of Vulnerable ROW
11. Minutes of meeting with the LPM for July'2002
12. List of leak/burst/pilfergae history of KAPL
13. Report on pilferage attempt at chainage 80.15kms in Nov'2001
14. Copy of the Air consents
15. Analysis report for stack emissions and AAQ quality at SBT
16. Copy of the Water consents
17. Analysis report for effluent water quality at SBT
18. Analysis report for noise levels at Koyali
19. Analysis report for noise levels at SBT
20. Incident report
21. Report on off-site mock drill (July'2002)
22. Report on the on-site mock drill with GR, GSFC and IPCL
23. Report on Inspection of Fire fighting and safety equipments
24. Status of different audits and gap analysis
25. Copy of Explosive licence and Public Liability Insurance
26. Environmental statement submitted to GPCB
27. Environmental Policy
28. Corporate SHE policy
29. Status of EMS Programmes at KAPL and Environmental Audit findings
30. Findings of the Surveillance audit by DNV
31. Community development programme and expenditure

Assessment Report

1 General information

Name of the pipeline	Koyali Ahmedabad Products Pipeline (KAPL)
Address	PO JawaharNagar-391 320, District Vadodara, Gujarat Tel: 0265 273107 Fax: 0265 273546
Contact persons	Deputy General Manager, KAPL, Koyali Sr. Technical Services Manager, KAPL, Koyali Sr. Operations Manager, KAPL, Sabarmati Deputy Technical Services Manager, KAPL, Koyali
Installed capacity	1.10 MMTPA Commissioned in 1966, augmentation has been done during 1983. 1966 0.70 MMTPA 1983 1.10 MMTPA

KAPL meets the demand of petroleum products in the Ahmedabad region. Highest ever annual throughput of up to 1.605 MMT has been achieved by use of chemical drag reducers. In 2001-02, annual throughput was 1.434 MMT (131% of the installed capacity), which was less due to reduced market demand at Ahmedabad.

Staff strength: KAPL has 87 employees, of which 45 are executives and 42 are in the non- executive category.

1.1 Pipeline location

Koyali-Ahmedabad Products Pipeline originates from Koyali (District Vadodara) and terminates at Sabarmati (District Ahmedabad). KAPL Headquarters at Koyali are located within the battery limits of Gujarat refinery. The Sabarmati terminal is located adjacent to IOC Marketing Division near Chandkheda on Mehsana Highway.

1.2 Brief description of KAPL

1.2.1 Koyali terminal

Finished petroleum products that are received from Gujarat Refinery tanks are:

1. Super Kerosene Oil (SKO)
2. High Speed Diesel (HSD)
3. Motor Spirit (MS) and
4. Aviation Turbine Fuel (ATF)
5. Diesel High Pour Point Army Grade (DHPPA)

These are then transported from Koyali to Sabarmati terminal. Corrosion Inhibitors and Chemical Drag Reducers are injected with the petroleum products (except for ATF and DHPPA) to mitigate internal corrosion and enhance the flow rate, respectively. Station control room at Koyali maintains close coordination and networking with Gujarat refinery and Sabarmati terminal to ensure smooth and safe product flow.

1.2.2 Sabarmati terminal

The transported petroleum products received at Sabarmati are pumped into storage tanks of Marketing Division of Indian Oil Corporation. Station control room at Sabarmati is similar to Koyali and maintains continuous contact with Koyali terminal and Marketing Division.

1.2.3 Mainline

Diameter of mainline	8 $^{5/8}$ inches
Pipe specification	API-5L-X46
Flow rate	190-250 kl/hour
Maximum operating pressure	90 kg/cm^2

The pipeline is cathodically protected and is coated with coal tar enamel. In its total stretch of 116 kms, the pipeline passes through two suspended and three submerged river crossings, respectively.

The pipeline passes through the districts of Vadodara, Anand, Khera and Ahmedabad, which are highly industrialised and urbanised sections of Gujarat. One of the suspended bridge crossings is under the road-bridge on National Highway No.8. The pipeline runs in common right of way to,

- Salaya-Mathura Pipeline till chainage 28km, and
- ONGC crude pipeline till chainage 111.7 km.

The route map sketch of the Koyali Ahmedabad Products pipeline is as Annex 1. Annex 2 highlights the layout of different pipelines running along with the Koyali Ahmedabad Pipeline.

1.2.4 Certifications and awards

KAPL has been certified for ISO 9002 (Quality System) in 1994 and ISO 14001 (Environmental Management System) in 1998, respectively by DNV. Re-certification audits have been carried by DNV for ISO 9002 and ISO 14001 and their validity is uptil 31st Dec 2003 and 2004 respectively.

KAPL has bagged a large number of safety awards from various agencies. Some of these are:

- National Safety Award from the British Safety Council, UK for 12times in succession
- National Safety Award from the Ministry of Labour for 8 times
- Certificate of Merit 1999-2000 from the Baroda Productivity Council for Good Housekeeping (7 times)
- Award of Honour 1999 from National Safety Council, USA (13 times, 6 in succession)
- Gujarat State Safety Award 1998 from Gujarat Safety Council (8 times)
- Golden Peacock Environment Management Award 2001 by the World Environment Foundation. KAPL is the first pipeline to have received this award.

1.3 Technological upgradations in last two years in station/ terminal

1. PLC based control panel has been installed at SBT Terminal where in all control cables and power cables connected to each equipment have been replaced by new one. The commissioning of this system is in progress.
2. PLC based control panel has also been installed at Koyali Pump Station and will be commissioned by December 2002. With this total automisation of operations at the station will be achieved.
3. 3 nos. HOVs at SBT manifold have been converted to MOVs and 1 No. HOV is being completely replaced with new MOV.
4. New MCC Panel is commissioned and balance is in progress at SBT with all safety features.
5. Fire Water Network at Koyali has been completely revamped and converted from underground to above ground-looped system. Additional hydrants / monitors have been provided as per OISD norms.

6. Installation of Automatic Fire detection and Alarm System is also in progress at Koyali Control Room and expected to be commissioned by December 2002.
7. Installation of Automatic Fire Detection and Alarm System has been completed at the Sabarmati terminal.
8. Two numbers of MOCB of 6.6 KV HT panel at Koyali pump station have been upgraded into VCBs for greater reliability and efficiency of operation.
9. Installation of LIDA anodes in place of conventional anodes has been completed at two places. This ensures a longer anode life with better efficiency.
10. LAN has been commissioned at Koyali and ON-Line connectivity through OFC has been established.

1.4 Technological upgradations in mainline

1. KAPL has for the first time carried out tape coating of mainline (1.74 km) in 2001-02. The conventional method of applying coal tar enamel has detrimental environmental effects because of fumes and molten coal tar.
2. KAPL has also tested coating of mainline using Polyurethane which is cold applied and hence environment friendly. Analysis is being done of the trial coating.
3. KAPL has also procured special oil spill dispersants and booms for handling oil spills at river crossings, terrain. This is to ensure an efficient and quick response in case of oil spill.
4. KAPL is planning to procure latest instruments like Vibration Analyser and laser beam alignment for monitoring health of critical pumping units.
5. Intelligent pig survey of mainline is being planned to assess point-by-point health of pipeline and eliminate possibilities of any disaster due to unknown abnormalities in the pipeline.
6. Development of GIS and SAP at KAPL is being also planned.

1.5 Highlights for last two FYs

	1999-2000	**2000-2001**	**2001-2002**
Annual throughput	1.605MMT	1.548MMT	1.434MMT
Operational loss	Zero	Zero	Zero
Shutdown hours	40.37 hrs	204.37 hrs	135.39 hrs

Operation & maintenance

---

1 Pipeline health- maintenance & monitoring

2.1.1 Coating

In the last two years, coat and wrap work refurbishment has been done for a total of 9.462 kms (5.687 kms in 2000-01 and 3.775 kms in 2001-02). Pearson survey and Soil Resistivity Surveys have been completed and final report received. Corrective Actions are being done as per recommendations. (Abstract of Report is attached as Annex 3).
No leaks on account of pipeline health occurred during the last two years.
[Rank: A]

2.1.2 Cathodic Protection

Weekly inspection of CP units and quarterly measurements of PSP values is carried out regularly.

Findings from secondary data
CP report and PSP profiles at different chainages for June'2002 are provided in Annex 4.

Power availability for CP units from Gujarat Electricity Board has generally improved in the last years and is above 90% at 13 of the 18 CP stations during the quarter ending June'2002. At the other 5 locations- Karchhiya, Fazalpur, Bakrol, Palana and Sokhada, the availability ranges from 72.9-89.8%. However, at two places (Fazalpur and Sokhada), the power availability was significantly low due to Jumper blow out and GEB pole disruptions. These two CP stations showed the least power availability during the quarter ending March'2002 as well. Fazalpur, for instance, has continuously witnessed erratic power availability from as low as 73% in June'2002 to as high as 98.7% in the 4th quarter of 1998 because of different failures in the GEB grid. The unit may consider installing stand-by supply sources like solar and battery operated units at such locations. PSP profile of KAPL (last four quarters) is maintained above the threshold value of –0.85V. Details on the consolidated CP report and %age power availability is provided as Annex 5.

Details of Anode bed renovation as in June'2002 are annexed as Annex 6.
[Rank: A]

2.1.3 Corrosion rate

Corrosion coupon survey was conducted on regular basis and internal corro rate has been observed to be less than 1.0 mils/year classified as LOW by NA It is reported that insignificant amount of residue was received at the SBT terminal at the time of quarterly pigging operation, indicating negligible inte corrosion and clean inner surface of the pipeline.
Copy of internal corrosion monitoring reports for April 2002- July 2002 is Annex 7.
[Rank: A]

2.1.4 Pump/valve maintenance

Preventive and predictive maintenance of rotary, reciprocating and stationa equipments is being carried out as per the schedule. Major overhauling of M motor was started in 2000-2001 and has been completed successfully. Leak and droppings from pumps and valves were negligible. KAPL has also carrie out laser beam alignment of the mainline pumps to check the vibration and noise levels from the pumps. Vibration analysis of mainline pumping units also been carried out. Besides monitoring of the bearing condition of pump motors and mainline is also being carried out. Calibration of all meters and mainline instruments is being done regularly.
[Rank: A]

2.1.5 Pigging

Quarterly pigging has been done on a regular basis as per OISD-138.

Findings from secondary data
Pigging reports for the last quarters do not indicate any "muck' formation in the pipeline and the dirty product collected at SBT was very less in quantity all occasions. The condition of pig was good and no foreign material was removed. Further there was no slippage between the theoretical and actual travel time of the pigs.

Pigging Rank: [A]
Smart Pigging Rank: [A]

Copy of the pigging report is as Annex 8.

2.1.6 Record keeping - Pipeline Health

Comprehensive data is maintained on the status of pipeline health. Record keeping is reliable and up to date.
[Rank: A]

A maintenance conference was also organised by WRPL at KAPL, Koyali where delegates of the entire pipeline participated including Gujarat Refinery maintenance group. Various task groups came up with new points and fruitful recommendations emerged from this conference.

2 Line patrolling/leak detection

2.2.1 Critical parameter monitoring

The unit is continuing with the previous system for flow and pressure measurements at terminals and hourly crosschecks on telephone. Line patrolmen and villagers also intimate the KAPL control room in case any leak or burst. Work is already in progress for the total automation of operations using PLC controls for all critical parameters- line pressure, product density and temperature, valve positions etc with Koyali as the master station.

Futuristic plans for KAPL include installation of remote controlled mainline valves and provision of SCADA system. Although the implementation of SCADA was planned for the year 2000 and tenders were floated long back, complete implementation has not been done. Implementation of SCADA has progressed with the installation of PLC based panels at both Koyali & Sabarmati and conversion of HOVs to MOVs at both locations. The implementation of SCADA on the mainline requires laying of optical fibre link as well as motorisation of Mainline HOVs which is under consideration by the unit in its future plans.
The existing system of monitoring is perceived to be adequate given the health of the pipeline and probability of leaks/ bursts occurring due to other causes.
[Rank: A]

2.2.2 Line patrolling

Each patrolman covers a section of about 22km with a system of regular rotation of the patrolling schedules. Daily reporting to the Koyali office is done, reports still sent on pre-printed postal envelopes. LPM and other KAPL officers are maintaining close liaison and cordial relationship with the local villagers. Such support and cooperation serves as a back up to line patrolling. Villagers inform LPM or the KAPL management, in case of any leakages/ suspicious observations.

Recent meetings with LPM laid stress on their being vigilant in their duties, preventing encroachments, avoiding fencing activities on common ROW without NOC and obtaining prior intimation on construction activities in ROW.
Copy of the daily patrolling report is also attached as Annex 9. Vulnerable areas have been identified in the mainline and frequent and surprise patrolling by officers ensures a check on LPM activities (Annex 10). A copy of the minutes of the meetings with LPM (July'2002) is attached as Annex 11.
[Rank: A]

2.2.3 Record keeping – Leakage history

Records were available on exceptions in operations, including leakages, pilferage attempts, and so on. List of leak/burst/pilferage history of KAPL is as Annex 12. There was a pilferage attempt in November 2001 at chainage 80.15 kms, which was tracked well in time and was reported to higher authorities for necessary action. Details of this are as provided in Annex 13.
[Rank: A]

[OVERALL RANK FOR O&M: A]

Pollution

3.1 *Air*

- Air Consent has been obtained separately for operations Sabarmati terminal. However, the consent for operations at the Koyali terminal is covered under the consent for the Gujarat Refinery and was valid upto 31 July'2002. The Gujarat Refinery has already applied for renewal of Air Consent, which has been renewed by GPCB. The consent is valid for further period of one-year upto 30-07-2003 (Refer Annex 14).
- The Air consent for the Sabarmati terminal stipulates ambient air quality (AAQ) standards, and none for stack emissions from DG sets and is valid upto 2005 (Refer Annex 14).
- The terminal does not possess kit/laboratory facilities for measuring ambient air quality and stack emissions at either of its locations.
- AAQ and stack emission monitoring at the Sabarmati Terminal is being done monthly by external agencies. AAQ monitoring at Koyali terminal is carried out by Gujarat refinery. Analysis report for stack emissions and AAQ quality at SBT is as Annex 15.
- The AAQ and stack emissions are well within compliance limits.

[Rank: A]

3.2 *Noise*

Noise pollution is mainly concentrated around the pump station at the Koyali terminal and is significant from the workers perspective. Noise level monitoring is being done on yearly basis. Detailed assessment of noise pollution is covered in Section 5 on Worker Environment. Ear Muffs / Plugs have been provided to employees.

[Rank: A]

3.3 *Water*

- A Water Consent valid upto 2005 has been obtained for the Sabarmati terminal. For operations at the Koyali terminal, the Gujarat Refinery has already obtained renewal of Water Consent upto 30/7/2003 and copy of consents is as Annex 16.

- The Sabarmati terminal is equipped with an oil-water separator.
- Effluent quality monitoring is being done by external agencies as and when the wastewater is discharged. Analysis report for effluent water quality at SBT is as Annex 17.
- The discharge from the oil-water separator at SBT is sent to the ETP at IOC's marketing terminal via a pit in the marketing terminal that stores wastewater temporarily.
- Oil spillages/ leakages at Koyali terminal are pumped to the central ETP of the Refinery.

[Rank: A]

3.4 Solid waste

There is no solid waste generation during regular operations at KAPL, since storage tanks are not under the responsibility of KAPL.
[Rank: Not Applicable]

[OVERALL RANK FOR POLLUTION: A]

Resource intensity

4.1 Energy

The facility has in place a system of tracking energy consumption. An in-house audit is conducted yearly. The trends indicate an increase in energy consumption. The energy efficiency has also decreased because of the decrease in annual throughput. However, measures are being taken for energy conservation in MS pumping units, Booster pumps, Lighting system at Koyali and Sabarmati by efforts such as in-house energy studies, proper pump combination and higher levels of illumination.

Energy consumption data

	Years		
Energy Consumption	1999-00	2000-2001	2001-2002
Energy consumed in 1000kWh	5075	5147	5364
Target (kCal/ MT.km)	23.64	23.64	23.64
Actual energy consumption (kCal/ MT.km)	23.40	23.60	27.83

[Rank: A]

4.2 Water

Though the facility is tracking water consumption, it does not appear to have made efforts to reduce consumption. On the whole, the level of water consumption is not significant.
[Rank: A]

OVERALL RANK: A

Worker environment

- Exposure to noise levels at Koyali and Sabarmati are well within the OSHA limits (Refer Annex 18, 19)
- Workers are being provided with earmuffs to protect themselves from any possible noise damage
- Routine (annual) internal audits are conducted for housekeeping, which are based on OISD checklist formats

The nature of routine operations at KAPL does not suggest any other major hazard for workers.

OVERALL RANK: A

Contingency management systems

6.1 *Past track record*

No major accidents reported in the last two years. Latest incident report is as for February' 2002 is as Annex 20.
[Rank: A]

6.2 *Contingency management plan (CMP) - scope*

A well-defined CMP is in place and has been updated wrt the contact persons & contact numbers of the key personnel.
Regular liaison is maintained with the fire services/local district officials to facilitate smooth and quick response in case of an emergency. Also during mock drills in the ROW, local agencies are involved.
[Rank: A]

6.3 *Contingency management plan - efficacy*

- Fire drills at pump stations are conducted regularly at a frequency of once a month. The last off site mock drill was conducted at chainage 29.30kms, near Anand on 17th July'2002. Details of the last mainline drill are provided in Annex 21.
- A major on-site mock drill was carried out at Koyali on 10th Oct'2001 alongwith the Gujarat Refinery and mutual aid partners- GSFC and IPCL. Details of the same are given as Annex 22. Points recommended for further action during the on-site mock drill need to be implemented. Annex 22 also contains report on surprise mock drill conducted at SBT in July'2002.
- SBT has been nominated as member of the local crisis group for Chandkhera area as per the Chemical Accident Rules 1996, Rule 8 wherein there are 25 members in the group.
- A well- defined frequency of testing the fire fighting equipments and system is being followed at both the terminals. Details are as Annex 23.
- There are regular contact programmes and meetings with villagers, local police and other district officials to inform them about "Dos" and "Don'ts" in case of an emergency.

- Monthly safety meetings and regular inter-departmental meetings are held to review the safety matters.
- The status of implementation of recommendations of different audits and gap analysis is as Annex 24.
  [Rank: A]

6.4 Contingency prevention/mitigation systems

- KAPL does not possess fire engines of its own. However, help is readily available from Refinery and Marketing Divisions. Adequate fire extinguishers (foam and CO_2 type) are maintained at both the terminals as per OISD 117. Sabarmati terminal has a firewater pump and water pond.
- The terminals have access to jockey pumps of Refinery/ Marketing Divisions for additional water requirements and their firewater storage. Fire-fighting equipment for mainline fires are primarily at the two terminals. The fire fighting equipment is regularly checked to ensure that it is in working condition. Compliance with OISD – 117 has been ensured.
- Fire and safety training is regularly given to employees. Safety Day, Fire & Safety week etc. are observed with employee participation. Sufficient posters, slogans etc. are displayed all over the premises.
- Encroachment pressures on ROW requiring stronger response measures by IOC.
- It would be better that the contact details of key personnel in case of emergency be displayed in the office of the head of the unit for ready reference.
- The current electric generator, being of low capacity (30KVA) is being replaced by a 100KVA generator. This 100 KVA DG Set has been received at SBT and can cater to the total emergency load requirements including fire-fighting facilities in case of power supply interruption. Installation and commissioning is planned to be done by Dec'2002.

[Rank: B]

OVERALL RATING: A

Environmental management systems

,.1 Past track record

7.1.1Record of notices/ penalties/ charges filed against the unit, by local regulatory authorities - in the last 2 years

None.

[Rank: A]

7.1.2 Record of public complaints/ litigation filed against the unit - in the last two years

None.

[Rank: A]

7.1.3 Availability of approvals/ permits

Requisite approvals/ permits are in place. Copy of the Explosive licence and Public Liability Insurance is as Annex 25.

[Rank: A]

7.1.4 Quality of reporting

The requirements for regulatory reporting are minimal. Annual environmental statement is being submitted. Consents for operation at the Sabarmati terminal have been obtained under both the Water Act and the Air Act and are valid upto 2005. For operations at Koyali, consent under Water Act and Air Act is obtained by the Gujarat Refinery and has been renewed upto 30-07-2003. Public Liability Insurance has been taken by IOC and covers all units uptil 31st March 2003. Copy of the Environmental statement submitted to GPCB is as Annex 26.

[Rank: A]

7.2 Policy

ISO 14001 certification has already been obtained. The results of the external audit by the certifying agencies show adherence to the standard.
A copy of the environment policy is attached as Annex 27. The Corporate policy on Safety, Health and Environment is also attached as Annex 28.

[Rank: A]

7.3 Planning

Requisite risk identification systems, systems for tracking regulatory and other requirements are in place. The facility has a system of target setting which is reviewed quarterly.
[Rank: A]

7.4 Implementation - ensuring capability

7.4.1 System for allocation of resources (financial and human resources)

Given the nature of operations involved in a pipeline facility, operational and environmental issues closely overlap. This implies that the financial and human resources required for environmental aspects can be largely obtained from the facility's operating (including fire & safety) resources/ budgets. The same is the case at KAPL.
[Rank: A]

7.4.2 Adequacy of allocations (financial and human resources)

As mentioned above, there are no separate allocations of human/ financial resources for environment. The resources provided for environmental functions, from the operating budgets/ manpower were perceived to be adequate.
[Rank: A]

7.4.3 Responsibility structure for environmental function

A responsibility structure is in place for the environment function.
[Rank: A]

7.4.4 Environmental manager reporting line

Dedicated and separate environmental staff not allocated. However, responsibilities are clearly delineated and handled adequately.

7.4.5 Existence of awareness/ training programs. Frequency & personnel covered

Training is undertaken on environmental and safety aspects. The staff at the terminals and LPM have been provided training on environmental aspects and environmental management systems.
[Rank: A]

5 *Implementation - support action*

7.5.1 Internal MIS for environment (other than regulatory formats)

A comprehensive system of reporting exists for aspects relating to safety and incidents. Immediate reporting of incident is done in case of leak/ burst/ any other accident. Besides accident/ incident reporting to regional office (WRPL) and HO on a monthly and quarterly basis respectively is also being followed. Details of the monthly fire drill and minutes of the monthly safety meeting are also sent to the regional and head offices.
[Rank: A]

7.5.2 Review level for internal MIS

The reports are sent to relevant environment and fire/ safety in-charges at regional and head offices.
[Rank: A]

.6 *Measurement and evaluation*

7.6.1 Measuring and monitoring

[Already covered in previous sections. No additional/ separate observations warranted.]

7.6.2 Records maintenance

Level of general records maintenance - internal papers, correspondence, legal permits and so on - reasonably good.
[Rank: A]

7.6.3 QA in monitoring/ measurement process

Monitoring and measurement of environmental parameters has been outsourced to environmental agencies (approved by SPCB) and is carried out regularly.
[Rank: A]

7.6.4 Audit system

There is a separate environmental audit at internal level. Details of audit findings and their compliance is as Annex 29.
Finding of the surveillance audit by DNV is as Annex 30.
[Rank: A]

7.7 Local Initiatives

7.7.1 Local community involvement

A cordial relationship with the local villagers is built through the community contact programmes and serves as a back up to line patrolling. Details of the welfare activities and expenditure under the community development programme are as Annex 31.

Scope for afforestation activities is limited in pipeline operations since roo can damage the pipeline, and access to pipeline/ pumping station in case of fi contingencies is reduced. The facility area is generally green.

Four villages have been identified for the awareness generation and tree plantation programmes for 2002-03.

[Rank: A]

7.8 Miscellaneous comments

7.8.1 Implementation of environment management plan

N.A.

7.8.2 Environmental performance & commitment

The high level of commitment in the management for improving the environmental performance, as was evident from the active involvement of senior management at the facility and corporate office levels. The obtention o ISO 14001 has ensured institutionalisation of environmental management systems, and the principle of continual improvement in environmental performance.

[Rank: A]

OVERALL RANK: A

Summary observations

***Operations & Maintenance* ....A**

Pipeline Health- Maintenance and Monitoring ....A

Coating ....*A*

+ No leaks on account of pipeline health
+ Coat and wrap work refurbishment being done
+ Pearson survey and Soil Resistivity Surveys have been completed and corrective actions being taken

Cathodic protection ....*A*

- Power availability to CP stations could be improved through use of alternative energy sources.
+ Maintenance of PSP profile above the threshold values.

Corrosion Inhibitors ....*A*

+ Internal corrosion categorised as " LOW" as per NACE

Pump/valve maintenance ....*A*

+ Major overhauling of MP2 motor has also been completed successfully
+ Laser beam alignment of the mainline pumps and vibration analysis of mainline pumping units has also been carried out
- Non-motorised valves along the mainline

Pigging ....*A*

+ No "muck" formation inside the pipeline.

Record keeping-Pipeline health ....*A*

+ Comprehensive data maintained on status of pipeline health

Line Patrolling/Leak Detection..A

Critical parameter monitoring ....*A*

- Absence of SCADA, implementation being considered.

+ Existing system of monitoring is perceived to be adequate given the health of the pipeline and probability of leaks/ bursts occurring due to other causes

Line Patrolling..*A*

+ Communication facilities for LPM
+ Quality checks and accountability of LPM

Record keeping- Leakage history .... *A*

+ Records are adequately maintained

Pollution* ....*A

+ Minimal point source pollution to air or water
+ Protective equipment against noise pollution provided

Resource Intensity* ....*A

+ Systems to track energy consumption in place

Work Environment* ....*A

+ Good housekeeping practices observed

Contingency Management System*.......................................*A

+ No major accidents in the past two years.
+ Detailed contingency and disaster control plan.
+ Well-established system of safety audits and checks.

- Contact details of key personnel for handling emergency to be displayed in the office of the head of the unit for ready reference
- Encroachment pressures on ROW requiring stronger response measures by IOC

Environmental Management System*..................................*A

+ Facility is certified for ISO 14001.
+ High level of management commitment to environmental performance.

Rating construct

Operation and Maintenance: A

Parameter - I	*Parameter - II*	*Rating Categories* *A*	 *B*	 *C*	*Rating*
Pipeline Health - Maintenance and Monitoring					A
Coating		Yes	Yes	Yes	
Cathodic protection	PSP (TLP) measurement and CP station monitoring	Quarterly+Satisfactory with regular checks	Annually+Satisfactory with regular checks	Some periodicity with gaps	
Inhibitor	Coupon survey frequency & trend	2 times/yr (max 7.5 mths)	Once in a year	Some periodicity with gaps	
Pump/valve mainten.	Maintenance frequency	Once in six months	2 times/year(max interval 7.5 mths)	Some periodicity with gaps	
Smart pigging	Freq.; Action taken; Plan	Satisfactory	Satisfactory - minor gaps	Major gaps	
Pigging	Freq.; Trends; Action taken	Quarterly+No exceptions	Once in six months+No exceptions	Annually with gaps	
Record keeping - Pipeline Health		Detailed and reliable data available for last 2 yrs	Data available for last 2 yrs	Major gaps in data availability	
Leak Detection & Patrolling					A
Critical parameter monitoring	Adequacy & reliability(2)	SCADA/ Metering (Subject to condition on mainline)	Metering (Hourly)	Metering (Some periodicity)	
Leak detection - Line Patrolling	Schedule, quality checks	Adequate	Minor gaps	Major gaps	
Record keeping - Leakage history		Incident assessment report available with follow up action	Available	Major gaps in data availability	

Pollution: A

Parameter - I	Parameter - II	Rating Categories A	B	C	Rating
Pollution: Air					A
Stack Emission levels					
Emission levels		As per consent			
Monitoring & testing facilities/ arrangement		Own monitoring kit/ Tie-up with external consultant		Minor gaps in eqpt/ system	
Knowedge of staff (if own monitoring)		Adequate		Gaps	NA
Qlty of measrmt & record keeping	Frequency	Periodic/ As per Consent		Gaps in system	
	Availability & qlty of info	Adequate, reliable data		Gaps in system	
Ambient Air Quality					
AAQ level		Satisfactory / As per Consent			
Monitoring & testing facilities/ arrangement		Own eqpt/ External agency			
Knowedge of staff (if own monitoring)		Adequate		Gaps	NA
Qlty of measrmt & record keeping	Frequency	Periodic/ As per Consent		Gaps in system	
	Availability & qlty of info.	Adequate, reliable data		Gaps in system	
Afforestation	Green belt around	Adequate	Average	Inadequate	A
Pollution: Noise					
Noise level (dBA)	Day/ Night	Within OSHA/ legal standards			
Noise monitoring	Freq: As per guidelines (Once in 4 mths)	Annual	Once in last 1 year		
	Monitoring facilities	Adequate		Some gaps	A
Pollution: Water					
Water effluent quality	Adherence to limits	Satisfactory		Yes + Some lapses	
Wastewater collection	Adequacy & Operns	Satisfactory		Yes + Some inadeq.	
Treatment & Disposal	Functioning of OWS	Satisfactory		Yes + Some lapses	
Monitoring+ testing capabilities (infrastructure, methodology)		Satisfactory		Yes + Some lapses	
Ground water quality	Monitoring	Yes*		Gaps	NA
Pollution: Solid Waste					
Storage facilities (if hazardous)		Satisfactory		Yes + Some lapses	NA
Disposal & tptn systems		Satisfactory		Yes + Some lapses	NA
Reuse		Max	Some	As per reqts (if any)	NA
Monitoring systems		Satisfactory		Yes + Some lapses	NA
Oil Recovery		Yes	Yes	Yes + some lapses	NA

* Based on previous reports

RESOURCE INTENSITY: A

Parameter - I	*Parameter - II*	*Rating Categories*				*Rating*
	A	*B*	*C*	*D*	*E*	
Energy						**A**
System to track energy consumption	Yes	Yes	-	-	-	
Conduct of energy audit	Yes	-	-	-	-	
Efforts to reduce energy consumption	Yes	-	-	-	-	
Water						**A**
System to track water consumption	Yes	Yes	-	-	-	
Efforts to reduce water consumption	Yes	Nil, Insignificant issue				

WORKER ENVIRONMENT: A

Parameter - I	*Parameter - II*	*Rating Categories*					*Rating*
		A	*B*	*C*	*D*	*E*	
WORK ENVT. (In-plant): Noise Exposure							A
Exposure [dBA]		Within OSHA limits		Some lapses		-	
Safeguards (Earmuffs, Cabins)	Ear protection where noise lvl exposure(8 hr)>= 90dBA	Yes	Gen'ly Yes	Gen'ly No	No	-	
WORK ENVT. (In plant): Air Quality							A
Exposure level (mg/ m^3) (TLV)		Within limits		Lapses			
Safeguards used	(where applicable)	Yes	Gen'ly Yes	Gen'ly No	No		
WORK ENVT. (In-plant): Fugitive Emission/ Housekeeping							A
FE minimisation	Control measures/ H.keeping	Excellent	Good	Average	Poor	-	
WORK ENVT. (In-plant): Confidence factors							A
a) H &S systems:							
Health check-ups, records	Regularity, Details, Coverage	Y (All 3)	Y (Any 2)	Y (Any 1)	None	-	
Monitoring of in-plant condns	Aspects covered	All	Main	Gaps	-	-	
	Frequency	Regularly	Regularly	Gaps	No	-	
	Monitoring fac.	Full	Adequate	For IAQ	No		
	Checking for fug. emissions	Regularly	Regularly	Occas'ly	No	-	
Safety awareness in employees	Posters, notices advising safety measures	Yes	Yes	None	-	-	
b) Medical infrastructure:	Facilities/ Eqpt (Adequate, Func'l)	Yes- AF	Yes- AF	Yes- Basic	None	-	
	Med. personnel (No. & Skills)	Yes- NS	Yes- NS	Yes- S	None	-	

CONTINGENCY MANAGEMENT SYSTEM: A

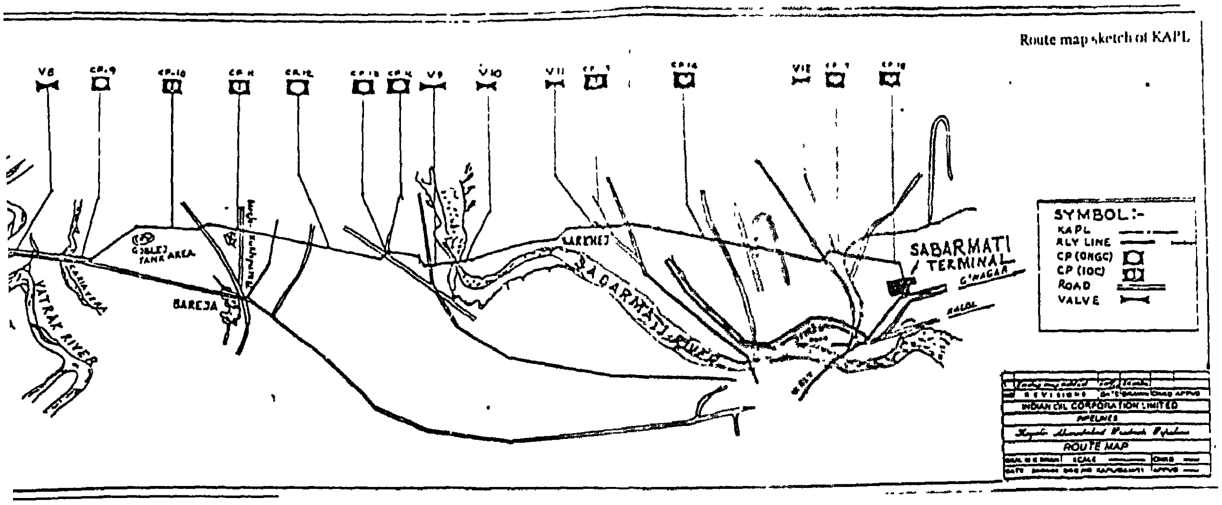
Parameter - I	*Parameter - II*	*Rating Categories*					*Rating*
		A	*B*	*C*	*D*	*E*	
Past track record:	Incidents in past 2 yrs	None	Minor	-	-	-	A
Contingency plan - Scope:	Existence of CMP	Yes	Yes	-	-	-	A
Which potential emergencies addressed?		All	Significant	-	-	-	
Action pts in case of emergency		Detailed	Basic	-	-	-	
List of key personnel with resp. allocation		Yes	Yes	Yes	-	-	
List of emergency services with contact no.s		Yes	Yes	Yes	-	-	
Liaison with emergency services (if reqd)		Yes	Yes	-	-	-	
Contingency plan - Efficacy							
Freq of drill for testing CMP	Fire+Mainline Drills	Mthly + Half-Yrly	Qtly + Yrly	Periodic	-	-	A
Contact prog for CMP	Trng/ awareness - villagers, police, distt officials	Regular	Regular	Periodic			
System of internal checks and audits		Adequate & Regular	Regular	Occasional			
Contingency Prevention/ Mitigation Systems:							B
Fire fighting systems		Adequate, comprehesive	With some minor lapses	Some gaps			
Oil spill response system		Adequate	With some minor lapses	Some gaps			
Communication network - with respect to response time		Dedicated & Reliable	Adequate	Chances of some delay			
Risk Analysis studies		Adequate scope and frequency		Gaps in scope			
ROW maintenance and monitoring		No problems & regular followup	Some encroachments & regular followup	Serious encroachments/inadequate followup			
Safety awareness amongst staff	Posters, Notices, Trng pgms	Yes	Yes	Some	-	-	

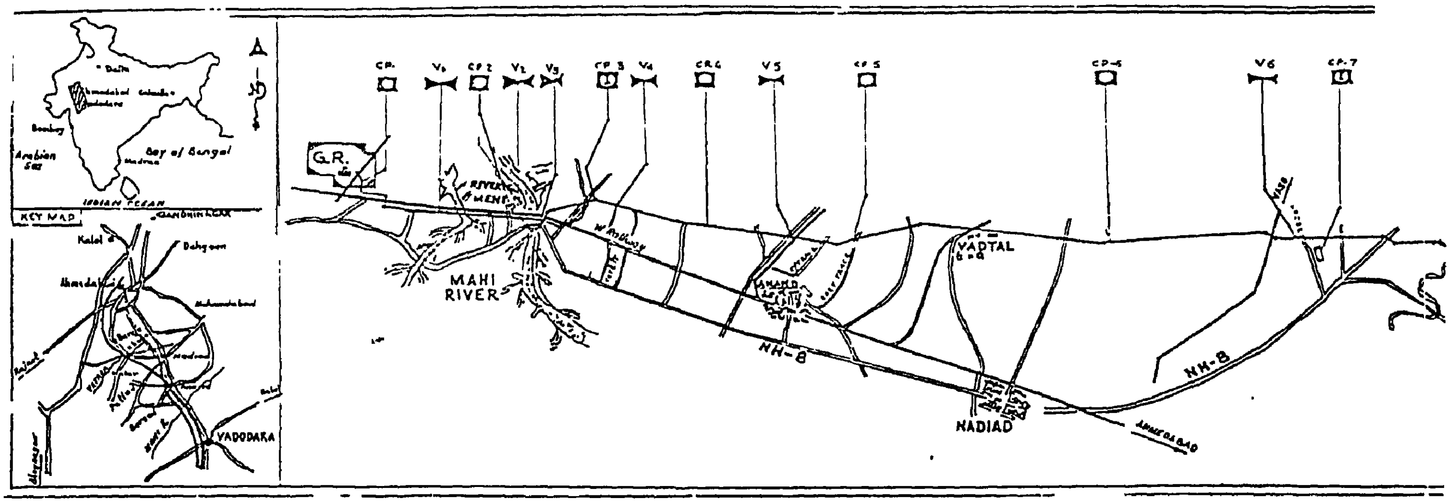
ENVIRONMENTAL MANAGEMENT SYSTEMS : A

Parameter - I	*Parameter - II*	*Rating Categories* *A*	*B*	*C (If not C, then D)*	Rating
Past track record					A
Notices/ penalties/ charges*	(In past 2 yrs)	Nil	No outstanding issues	No prosecn in last 6 mths	
Public complaints/ litigation*	(In past 2 yrs)	Nil	No outstanding issues	No prosecn in last 6 mths	
Availability of requisite approvals/ permits/ consents		Complete	Complete	No major omissions (Also for 'D')	
Regulatory reporting	Regularity	Timely submission	Timely submission	Occas'l delays	
	Qlty of rptg (i.e. deviation fm observed levels)	Insignif. varns/ inconsis- -tencies (last 4 rpts)	Insignif. varns/ inconsis- -tencies (last 4 rpts)	Minor varns/ inconsis- -tencies (last 2 rpts)	
Policy					A
Existence & Scope		Goes beyond legal reqts, to reflect concern about pot'l liabilities.	To comply wtih regulations affecting the business.	None	
Planning					A
Impact/ Risk identificn system	(ISO 14001: Register for env'l	Yes	Yes	No	
System for identifying/ tracking legal/	(ISO 14001: Register for	Yes	Yes	Yes	
Env'l Objectives & Tgts (2)	Existence of: -Objectives	Yes, Adequately	Yes, minor gaps	No	
Implementation -					A
Resources - human, phy'l, fin'l	System for allocation - fin'l	Part of general budget		Adhoc allocation	
	- HR	Dual responsibilities for part of the staff		Adhoc responsibilities	
	Adequacy of res alloc.- fin'l	Yes	Yes	Inadequate	
	- HR	Yes	Yes	Inadequate	
Accountability/ Responsibility	Existence of clear resp str (3)	Yes	Yes	Yes	
	Env'l mgr reporting to	Unit head & HO	Unit head	Unit head	
Env'l awareness, skills, motivation, trng	Awareness & trng pgms - frequency & coverage (5)	System to provide pdic awareness pgms for most employees	Pgms only for employees directly affected by compliance reqts.	No	
Implementation -	***Support Action***				A
Communicn & reporting (Internal)	Scope	Beyond regul. reporting reqts.	As per regul. rptg reqts	None	
	Review level	Group env'l / prodn function head, Regular	Group env'l / prodn function head, some gaps	Unit - Head/ Snr Mgmt	
Measurement & Evaluation					A
Measuring & Monitoring (7)	Records maintenance (8)	Good	Adequate	Basic	
	QA in monitoring/ measurement process (9)	Yes	Yes	No	
Audits		At least annual	At least annual	Nil	
External Stakeholder Involvement					
Local community	Welfare initiatives (10)	Good	Average	Minimal	
Local habitat	Conservation efforts	Good	Average	Minimal	

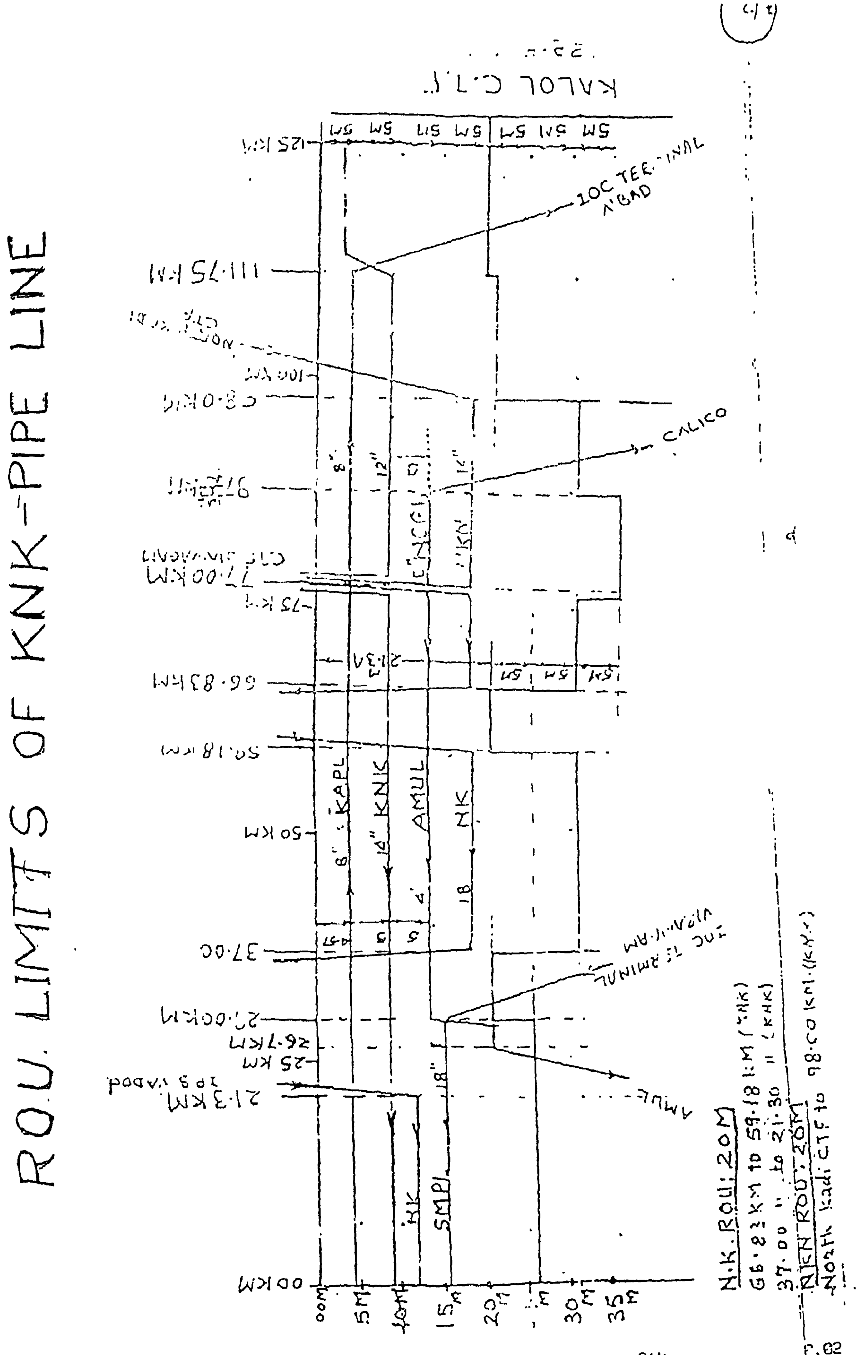
Annexures

Annexure 1: Route map sketch of KAPL



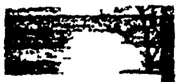

Delhi
Bombay
Arabian Sea
Bay of Bengal
Madras
INDIAN OCEAN
KEY MAP
N
GANDHINAGAR
Kalol
Dahgaon
Ahmedabad
Mehmedabad
Rajkot
VADODARA
CP.
V1
CP 2
V2
V3
CP 3
V4
CP 4
V5
CP 5
CP-6
V6
CP-7
G.R.
RIVER
MAHI RIVER
ANAND
NH-8
VADTAL
NADIAD
AHMEDABAD
VASO

Annexure 2: Layout of different pipelines running along Koyali Ahmedabad Pipeline



Annexure 3: Pearson survey and Soil Resistivity Survey reports

INDIAN OIL CORPORATION LTD.

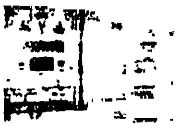


LIB·COPY
KAPL

Soil Resistivity , Pearson and CPL survey report

For KAPL & KNKPL product pipelines

IOCL BARODA



SURVEY DONE BY

CORRTECH INTERNATIONAL PVT. LTD.
AHMEDABAD

VOL-1

We add life to your lifeline.......

CONTENTS

1. EXECUTIVE SUMMARY
2. SURVEY PORCEDURES
3. SOIL RESISTIVITY SURVEY REPORT
4. PEARSON SURVEY REPORT

VOL-2

5. CPL SURVEY REPORT - GRAPHICAL - FOR KNKPL
6. CPL SURVEY REPORT - ANALYTICAL - FOR KNKPL

VOL-3

7. CPL SURVEY REPORT - GRAPHICAL - FOR KAPL
8. CPL SURVEY REPORT - ANALYTICAL - FOR KAPL

ACKNOWLEDGEMENT

CORRTECH INTERNATIONAL PVT. LTD. (AHMEDABAD), in presenting this document gratefully acknowledges the excellent co-operation received form M/s Indian Oil Corporation Ltd. The entire field work has been carried out in co-ordination with them who provided invaluable guidelines . direction and extended all co-operation to our team.

Corrtech is particularly thankful to the IOCL team members who have participated and co-operated with us during the survey and provided the guidance from office also.

And lastly , Corrtech owes a debt of gratitude to Shri.H.B.G.Tripathi (Engg. In-Charge) and their team members for their guidance and co-operation to our team during the project.

EXECUTIVE SUMMARY :-

M/s Indian Oil Corporation Ltd. Is operating Koyali –Ahmedabad Product Pipeline and Koyli-Navagam Product Pipeline for their operations.

M/s Corrtech International Pvt. Ltd. , has been awarded to carry out the Resistivity survey for measuring the resistivity of Soil along the ROW of the pipelines , Pearson survey for locating the coating defect locations of pipeline coating, and the CPL (Close interval Potential logging survey to measure and prepare the PSP profile along the pipeline.

It was decided to carryout a Soil Resistivity survey on the entire pipeline to determine the resistivity criteria on pipeline rou , Pearson and CPL survey on selected sections of the Pipelines , same to determine the effectiveness and efficiency of the Cathodic Protection system and identify the vulnerable area on the pipeline as regards the coating.

.The entire field survey work was completed under guidance and co-operation of IOCL team members of Pipeline & CP department.

Soil Resistivity survey has been carried out through out the total length for ch 0.00 km to ch 115 km.

The Pearson and CPL survey has been decided to carryout in sections as listed :

Sr. no.	*Pipeline*	*CH From*	*Ch To*	*Length*
1	KNKPL	0.500	12.000	11.500
2		35.000	55.000	20.000
3		74.00	77.300	3.300
4	KAPL	35.000	55.000	20.000
5		60.000	65.000	5.000
6		78.000	84.150	6.150
7		110.000	115.700	5.700

The report/ results were as per the enclosed report.

PROCEDURE FOR CARRYING OUT THE CIPL SURVEY

We shall carry out a Close Interval Potential Survey for the selected section lengths of KAPL & KNKPL pipelines by using the computerized potential logging method and identify the C.P. Protection level after the CP system has stabilized. CIPL survey shall be carried out at approx. every 1 mtr. Intervals on the route of the pipeline. CIPL survey can be carried out separately on each electrical continuous section of the pipeline , ON and OFF readings shall be taken at every one Mtr. (On off ratio shall be 4:1 seconds.)

- The survey shall be carried out in the electrically continuous section of the pipeline so that as to simultaneously switch ON and Off the CP T/R units in that section.
- CP team has to go to the TLP from where this survey is to be started along with Sincorder ,Halfcell Stick (Cu / Cuso$_4$), Locator and measurement instrument (Rodometer.).
- Pipe location equipment shall be used to locate the route of the Pipeline.
- Connect one lead of the sincorder to the pipeline through the TLP with using long flexible wire and other lead to Half-Cell stick , switch on the Sincorder .
- The person will take the ON and OFF readings at the continuous interval of 1 mtr. On the Pipeline route and the same shall be entered and stored in to the sincorder.
- All the TLP locations , CP system locations , HT line crossing locations , Railway crossings, Major Road Crossings and other crossings shall be entered inside the Sincorder.
- Down load the data in a computer which is having the Sincorder Software after completion of the survey.

PEARSON SURVEY

➢ Scope

To execute Pearson Survey for locating the coating defects along the Selected sections of KAPL and KNK Product pipelines.

➢ Equipment and Accessories :

The following equipment has been used by Corrtech in the execution of th Pearson Survey on the pipeline :

1 TINKER & RASOR Pipeline locator and Holiday detector (U.S.make)
2 SPY Pipeline locator and Holiday detector (Pipeline Inspection Co. - U.S. make.)
3 Rodometer for measuring
4 Multimeter and Half cell.

➢ PROCEDURE

- ⇒ Locate the route of the pipeline using a pipeline locator and provide temporary markers on the route. This shall enable the surveyor to walk on the route of the pipeline for carrying out the PEARSON survey .
- ⇒ Carryout the Pearson survey by walking along the pipeline route and measure the coating damage locations with respect to permanent markers along the pipeline route.
- ⇒ The procedure shall be followed as per the instructions of the instrument manual.
- ⇒ The fault locations are also measured using the Rodometer with reference to some permanent markers or some identifiable location. The Rodometer distance measurement gives an accuracy of upto 1/10th of a meter.
- ⇒ The report for the survey thus carried out is represented in a graphical form using a colour code for coating defects. The Permanent marker positions and pipeline depths are also indicated at certain locations.

- Take a print out of this data a report shall be completed and submitted to the owner/ consultant.

THE REPORT SHALL BE INCLUDED.

- Data.
- Distance location details as a descriptors
- Energized Potentials "ON".
- Polarized potentials "instantaneous OFF"

EQUIPMENT AND INSTRUMENTS:

1. Data Collector – Sincorder (Computerized memory storage device – Data Logger of McMiller,U.S.A. MAKE) alongwith the Reference Cell Sticks
2. Current interrupters .
3. Rodometer
4. Pipeline locators
5. Flexible cable of required length
6. Computers loaded with the SINCORDER COMPANION SOFTWARE alongwith Printer.
7. Digital Multimeter and Portable Cu/$CuSO_4$ Reference Cells.

Four Terminal Measurement

After the test spikes have been set up and connected to the instrument, proceed as follows :

Press the push button. This will begin the test sequence.

Check that the display shows no adverse test conditions, i.e. the low battery voltage warning is not flashing .

After a few seconds the display will stabilize. Note this reading as Earth Resistance. Record in Format enclosed.

The Resistivity may be calculated from the following formula :

$$\rho = 2 \times \Pi \times a \times R$$

Where :
a = Depth in mtrs. (Represented by spacing between electrodes)
R = Resistance measured in ohms
ρ = Resistivity in Ohm - mtrs.

Using the above method, soil Resistivity shall be taken at all locations as per scope of the project , along the pipeline route and not the readings along with the chain age at the locations.

⇒ TEST REPORT

Record the readings in the specified format and calculate the resistivity using the multiplication factor for the same readings. List the readings along with the chainage details.

SOIL REISISTIVITY SURVEY

⇒ PURPOSE

To describe the procedure for carrying our soil Resistivity and site survey along ROW of pipeline.

⇒ SCOPE

This procedure covers the method for carry out site survey and soil Resistivity survey as per Wenner's Four pin method. The following data to be collected.

⇒ MATERIAL AND REFERENCE

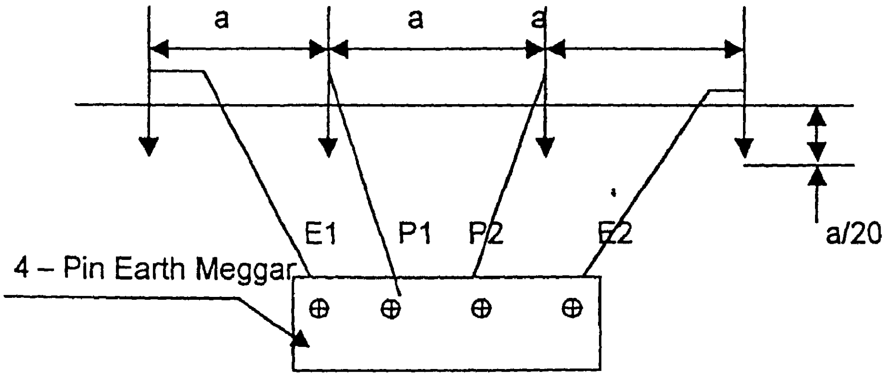
- Equipment : 4 - Pin Megger Digital Earth Tester. (CIE ,Model DET -2000).
- Materials : Steel Pins, Flexible cable , Hammer , Measuring tape, Accessories.

⇒ PROCEDURE

The measurement of soil Resistivity is a fairly reliable means for assessment of soil corrosivity of pipeline surrounding soil to be determined, soil Resistivity reading are usually taken at the depth of the pipeline. The soil Resistivity to be taken at different depth (For PCP 1,2,3 Mtrs.).

Setting up the Test Spikes etc.

Four test spikes are driven into the ground in a straight line at equal distances 'a' and to a depth of at maximum a/20. The instrument is connected to the test spikes as shown in the fig. Below :



RECOMMENDATIONS / OBSERVATIONS :

By carrying out the Pearson survey several locations for coating damages were identified and the same were listed as a separate pearson survey report :

As we have carried out the survey on selected sections the overall coating condition per section is as follows and the same represent the coating condition in nut cell form :

We recommend to carryout the recoating at locations listed in Pearson survey report as Continuous holiday and Intermittent holiday.

OBSERVATIONS AND RECOMMENDATION FOR CPL SURVEY :

We have carried out the CPL survey on selected sections of both KAPL and KNPL pipelines and on the basis of the survey and PSP report of both the pipelines we have observed as follows :

The off potential of the pipeline is under protected (is less than 0.85 volts off) for most of the pipeline of total 36 x 2 kms of the pipeline lengths.

For the same we recommend to keep the ***minimum*** on potential of the pipeline at every point / test station as 0.95 volts. To enable the total pipeline to get the sufficient potential at each point.

Also a marginal drop of PSP readings for the TR unit location to the next Test point is found , the same shall be check for the remoteness calculation for anode ground bed and to take necessary action. The remoteness of anode ground bed can be calculated by using the following formulae :

Ve = (p x I) / (2 X Pie (3.14) x D)

Where : Ve = Pipeline natural potential
D = distance of anode bed form the pipeline.
I = Max current feeding form T/R unit.
P = resistivity at location. (form Soil resistivity survey)

(if the anodebed is located as per the above calculation the Suddan PSP drop from the T/R unit location to the next TS should not be there , and hence the effectiveness of the anode / cp system can reach for more distance form the TR unit)

On the basis of PSP report of SEPT-2000 , we have observed that the PSP difference at locations listed and locations nearby as in table as follows is marginally high for the same we recommend the bonding between both the pipelines at atleast listed locations , to get the nearby equivalent PSP for both the pipelines .

As we have found fluctuations in PSP , we recommend to check the PSP with the other pipelines running parallel/crossing for the interference as well for AC interference at HT crossings . The foreign pipeline interference can be check by PSP graphs as well by interference test method (making nearby TR units on/off of foreign pipeline. take the PSP on our pipeline , same should not have any positive swing of more than 100 mV and vice versa for other pipeline.)

LOCATIONS RECOMMENDED FOR BONDING BETWEEN KAPL AND KNPL PIPELINES SELECTED BASED ON PSP REPORT OF SEPT-2000 AND CPL.

SR. NO.	*APP. CHAINAGE FOR BONDING BETN. KAPL AND KNKPL*
1	0.670
2	9.180
3	38.450
4	54.000
5	72.000
6	80.150
7	104.800

NOTE :- THE ABOVE LOCATIONS ARE IN ADDITION TO THE BONDINGS ALREADY PROVIDED AND ALSO BONDING AT ALL CP STATIONS WITH COMMON ROW

Soil Resistivity Data Sheet

PROJECT	CARRYING OUT SOIL RESISTIVITY SURVEY ON KAPL & KNPL PIPELINE		
OWNER	Indian Oil Corportation Ltd.		
CONTRACTOR	Corrtech International Pvt. LTd.		
Method of Survey	Wenner 4-Pin Method	**Meter**	AVO Make, U.K.

DATE:-

SR. NO.	Date	Location	Pin Spacing (mtrs)	Reading of Resistance	Multiplier	Resistivity (Ohm-Mtr)	SOIL CONDITION
106	30/09/00	CH 105 Km near Ravati Towers	1	9.35	6.28	58.72	C
			2	3.32	12.56	41.70	B
			3	1.37	18.84	25.81	B
107	30/09/00	CH 106 Km near R.C	1	8.00	6.28	50.24	C
			2	1.27	12.56	15.95	B
			3	0.23	18.84	4.33	A
108	30/09/00	CH 107 Km near R.C	1	5.04	6.28	31.65	B
			2	3.02	12.56	37.93	B
			3	1.30	18.84	24.49	B
109	30/09/00	CH 108 Km in side Gohil Industries	1	3.17	6.28	19.91	B
			2	0.34	12.56	4.27	A
			3	0.19	18.84	3.58	A
110	30/09/00	CH 109 Km near Road Xing	1	2.40	6.28	15.07	B
			2	1.12	12.56	14.07	B
			3	0.60	18.84	11.30	B
111	30/09/00	CH 110 Km near Road Xing	1	2.73	6.28	17.14	B
			2	1.84	12.56	23.11	B
			3	1.29	18.84	24.30	B
112	30/09/00	CH 111 Km near Rly Xing	1	2.84	6.28	17.84	B
			2	0.88	12.56	11.05	B
			3	0.62	18.84	11.68	B
113	30/09/00	CH 112 Km near Rly Xing	1	0.55	6.28	3.45	A
			2	0.37	12.56	4.65	A
			3	0.29	18.84	5.46	A
114	30/09/00	CH 113 Km in Field	1	3.15	6.28	19.78	B
			2	1.67	12.56	20.98	B
			3	0.97	18.84	18.27	B
115	30/09/00	CH 114 Km in Field	1	0.61	6.28	3.83	A
			2	0.31	12.56	3.89	A
			3	0.26	18.84	4.90	A
116	30/09/00	CH 115 Km in Field	1	2.06	6.28	12.94	B
			2	1.01	12.56	12.69	B
			3	0.63	18.84	11.87	B

Soil Resistivity Data Sheet

PROJECT	CARRYING OUT SOIL RESISTIVITY SURVEY ON KAPL & KNPL PIPELINE		
OWNER	Indian Oil Corportation Ltd.		
CONTRACTOR	Corrtech International Pvt. LTd.		
Method of Survey	Wenner 4-Pin Method	**Meter**	AVO Make, U.K.
	DATE:-		

SR. NO.	Date	Location	Pin Spacing (mtrs)	Reading of Resistance	Multiplier	Resistivity (Ohm-Mtr)	SOIL CONDITION
85	29/09/00	84 Km in Field	1	11.07	6.28	69.52	C
			2	6.77	12.56	85.03	C
			3	4.11	18.84	77.43	C
86	29/09/00	85 Km in Field	1	0.41	6.28	2.57	A
			2	0.08	12.56	1.00	A
			3	0.02	18.84	0.38	A
87	29/09/00	86 Km in Field	1	1.45	6.28	9.11	A
			2	0.27	12.56	3.39	A
			3	0.21	18.84	3.96	A
88	29/09/00	87 Km in Field	1	1.26	6.28	7.91	A
			2	0.64	12.56	8.04	A
			3	0.38	18.84	7.16	A
89	29/09/00	88 Km in Field	1	6.89	6.28	43.27	B
			2	2.84	12.56	35.67	B
			3	1.54	18.84	29.01	B
90	29/09/00	89 Km in Field	1	13.24	6.28	83.15	C
			2	7.67	12.56	96.34	C
			3	5.91	18.84	111.34	D
91	29/09/00	90 Km in field	1	14.42	6.28	90.56	C
			2	4.65	12.56	58.40	C
			3	1.97	18.84	37.11	B
92	30/09/00	91 Km in field	1	4.60	6.28	28.89	B
			2	2.83	12.56	35.54	B
			3	2.00	18.84	37.68	B
93	30/09/00	92 Km in Field	1	38.40	6.28	241.15	D
			2	9.57	12.56	120.20	D
			3	3.15	18.84	59.35	C
94	30/09/00	93 Km in Field	1	1.18	6.28	7.41	A
			2	0.51	12.56	6.41	A
			3	0.29	18.84	5.46	A
95	30/09/00	94 Km in Field near Cart track	1	0.90	6.28	5.65	A
			2	0.20	12.56	2.51	A
			3	0.06	18.84	1.13	A
96	30/09/00	95 Km in Field	1	3.21	6.28	20.16	B
			2	0.86	12.56	10.80	B
			3	0.24	18.84	4.52	A
97	30/09/00	96 Km in Field	1	0.86	6.28	5.40	A
			2	0.23	12.56	2.89	A
			3	0.08	18.84	1.51	A
98	30/09/00	97 Km in Field	1	0.51	6.28	3.20	A
			2	0.25	12.56	3.14	A
			3	0.04	18.84	0.75	A
99	30/09/00	98 Km	1	3.01	6.28	18.90	B
			2	0.95	12.56	11.93	B
			3	0.35	18.84	6.59	A
100	30/09/00	CH.99 Km in Field	1	3.92	6.28	24.62	B
			2	1.34	12.56	16.83	B
			3	0.67	18.84	12.62	B
101	30/09/00	CH 100 Km in Field	1	2.11	6.28	13.25	B
			2	0.57	12.56	7.16	A
			3	0.16	18.84	3.01	A
102	30/09/00	CH 101 Km in Field	1	0.99	6.28	6.22	A
			2	0.53	12.56	6.66	A
			3	0.46	18.84	8.67	A
103	30/09/00	CH 102 Km in Field near Road Xing	1	2.14	6.28	13.44	B
			2	1.27	12.56	15.95	B
			3	0.79	18.84	14.88	B
104	30/09/00	CH 103 Km in Field	1	7.00	6.28	43.96	B
			2	2.20	12.56	27.63	B
			3	0.90	18.84	16.96	B
105	30/09/00	CH 104 Km in Field	1	10.96	6.28	68.83	C
			2	4.86	12.56	61.04	C
			3	2.79	18.84	52.56	C

Soil Resistivity Data Sheet

PROJECT	CARRYING OUT SOIL RESISTIVITY SURVEY ON KAPL & KNPL PIPELINE		
OWNER	Indian Oil Corportation Ltd.		
CONTRACTOR	Corrtech International Pvt. LTd.		
Method of Survey	Wenner 4-Pin Method	Meter	AVO Make, U.K.
	DATE:-		

SR. NO.	Date	Location	Pin Spacing (mtrs)	Reading of Resistance	Multiplier	Resistivity (Ohm-Mtr)	SOIL CONDITION
64	28/09/00	63 Km in Field	1	4.05	6.28	25.43	B
			2	0.92	12.56	11.56	B
			3	0.46	18.84	8.67	A
65	28/09/00	64 Km in Field	1	1.82	6.28	11.43	B
			2	0.29	12.56	3.64	A
			3	0.02	18.84	0.38	A
66	28/09/00	65 Km in Field	1	1.78	6.28	11.18	B
			2	0.23	12.56	2.89	A
			3	0.05	18.84	0.94	A
67	28/09/00	66 Km in Side Babul Trees Area	1	11.10	6.28	69.71	C
			2	1.30	12.56	16.33	B
			3	1.36	18.84	25.62	B
68	28/09/00	67 Km near oppp. Mark Company	1	5.31	6.28	33.35	B
			2	1.93	12.56	24.24	B
			3	0.25	18.84	4.71	A
69	28/09/00	68 Km in Field	1	2.67	6.28	16.77	B
			2	0.91	12.56	11.43	B
			3	0.12	18.84	2.26	A
70	28/09/00	69 Km in Field	1	0.62	6.28	3.89	A
			2	0.32	12.56	4.02	A
			3	0.15	18.84	2.83	A
71	28/09/00	70 Km in Field	1	0.02	6.28	0.13	A
			2	0.16	12.56	2.01	A
			3	0.19	18.84	3.58	A
72	28/09/00	71 Km in Field	1	1.36	6.28	8.54	A
			2	0.20	12.56	2.51	A
			3	0.02	18.84	0.38	A
73	28/09/00	72 Km near C.T in field	1	1.88	6.28	11.81	B
			2	0.43	12.56	5.40	A
			3	0.12	18.84	2.26	A
74	28/09/00	73 Km in Field	1	0.03	6.28	0.19	A
			2	0.08	12.56	1.00	A
			3	0.10	18.84	1.88	A
75	28/09/00	CH 74 Km in Field	1	0.13	6.28	0.82	A
			2	0.01	12.56	0.13	A
			3	0.06	18.84	1.13	A
76	28/09/00	CH 75 Km in Field	1	0.44	6.28	2.76	A
			2	0.03	12.56	0.38	A
			3	0.04	18.84	0.75	A
77	29/09/00	CH 76 Km in Field	1	0.65	6.28	4.08	A
			2	0.21	12.56	2.64	A
			3	0.01	18.84	0.19	A
78	29/09/00	CH 77 Km in Field	1	0.69	6.28	4.33	A
			2	0.18	12.56	2.64	A
			3	0.02	18.84	0.19	A
79	29/09/00	CH 78 Km in Field	1	0.84	6.28	5.28	A
			2	0.33	12.56	4.14	A
			3	0.13	18.84	2.45	A
80	29/09/00	CH 79 Km in Field	1	0.80	6.28	5.02	A
			2	0.24	12.56	3.01	A
			3	0.12	18.84	2.26	A
81	29/09/00	CH 80 in Field	1	1.10	6.28	6.91	A
			2	0.34	12.56	4.27	A
			3	0.13	18.84	2.45	A
82	29/09/00	81 Km in Field	1	0.70	6.28	4.40	A
			2	0.13	12.56	1.63	A
			3	0.04	18.84	0.75	A
83	29/09/00	82 Km in Field	1	9.2[illegible]	6.28	57.84	C
			2	3.53	12.56	44.34	B
			3	2.41	18.84	45.40	B
84	29/09/00	83 Km in Field	1	0.97	6.28	6.09	A
			2	0.47	12.56	5.90	A
			3	0.27	18.84	5.09	A

Soil Resistivity Data Sheet

PROJECT	CARRYING OUT SOIL RESISTIVITY SURVEY ON KAPL & KNPL PIPELINE		
OWNER	Indian Oil Corporation Ltd.		
CONTRACTOR	Corrtech International Pvt. LTd.		
Method of Survey	Wenner 4-Pin Method	**Meter**	AVO Make, U.K.
	DATE:-		

SR. NO.	Date	Location	Pin Spacing (mtrs)	Reading of Resistance	Multiplier	Resistivity (Ohm-Mtr)	SOIL CONDITION
1	22/09/00	0	1		6.28		
			2		12.56		
			3		18.84		
2	22/09/00	1Km	1	0.77	6.28	4.84	A
			2	0.46	12.56	5.78	A
			3	0.19	18.84	3.58	A
3	22/09/00	2Km	1	0.96	6.28	6.03	A
			2	0.48	12.56	6.03	A
			3	0.21	18.84	3.96	A
4	22/09/00	3Km	1	0.62	6.28	3.89	A
			2	0.48	12.56	6.03	A
			3	0.31	18.84	5.84	A
5	22/09/00	4Km	1	0.79	6.28	4.96	A
			2	0.32	12.56	4.02	A
			3	0.15	18.84	2.83	A
6	22/09/00	5Km	1	0.38	6.28	2.39	A
			2	0.13	12.56	1.63	A
			3	0.08	18.84	1.51	A
7	22/09/00	6Km	1	2.63	6.28	16.52	B
			2	1.28	12.56	16.08	B
			3	0.47	18.84	8.85	A
8	22/09/00	7Km	1	3.56	6.28	22.36	B
			2	1.61	12.56	20.22	B
			3	0.86	18.84	16.20	B
9	23/09/00	8Km in Field	1	8.56	6.28	53.76	C
			2	4.21	12.56	52.88	C
			3	1.80	18.84	33.91	B
10	23/09/00	9Km in Field	1	8.46	6.28	53.13	C
			2	1.89	12.56	23.74	B
			3	0.92	18.84	17.33	B
11	23/09/00	10Km near Kanal	1	3.38	6.28	21.23	B
			2	1.09	12.56	13.69	B
			3	0.46	18.84	8.67	A
12	23/09/00	11Km in Field	1	1.28	6.28	8.04	A
			2	0.22	12.56	2.76	A
			3	0.04	18.84	0.75	A
13	23/09/00	12 Km near Rly	1	1.69	6.28	10.61	B
			2	0.41	12.56	5.15	A
			3	0.04	18.84	0.75	A
14	23/09/00	13Km in Field	1	1.49	6.28	9.36	B
			2	0.30	12.56	3.77	A
			3	0.06	18.84	1.13	A
15	23/09/00	14 Km in Field	1	1.96	6.28	12.31	B
			2	0.75	12.56	9.42	A
			3	0.29	18.84	5.46	A
16	23/09/00	15 Km	1	3.78	6.28	23.74	B
			2	1.58	12.56	19.84	B
			3	0.88	18.84	16.58	B
17	23/09/00	16 Km in Field	1	2.92	6.28	18.34	B
			2	1.07	12.56	13.44	B
			3	0.56	18.84	10.55	B
18	23/09/00	17 Km in Field	1	2.34	6.28	14.70	B
			2	0.98	12.56	12.31	B
			3	0.58	18.84	10.93	B
19	23/09/00	18 Km in Field	1	1.75	6.28	10.99	B
			2	0.55	12.56	6.91	A
			3	0.24	18.84	4.52	A
20	23/09/00	19 Km in Field	1	1.92	6.28	12.06	B
			2	1.13	12.56	14.19	B
			3	0.75	18.84	14.13	B
21	23/09/00	20 Km in Field	1	2.12	6.28	13.31	B
			2	0.91	12.56	11.43	B
			3	0.47	18.84	8.85	A

Annexure 4: CP report & PSP profile reports

FORM No: KAPL/MNT/(CP)/02
EFFECTIVE No.01/01/1997

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE
JAWAHARNAGAR, DIST.VADODARA 391320

PSP Survey for the Month of JUNE 2002 (II QUARTER)

Sl No	Ch. in KM	Date	Location	KAPL PSP in Volts (-ve)		KNK PSP in Volts (-ve)		Remarks
				Carrier	Casing	Carrier	Casing	
1.	0.00	21/6/02	Koyali pump station outgoing valve	1.06	–	1.22	—	
2.	0.02	„	Behind Koyali pump station boundary	1.07	0.70	1.25	0.53	Natural Soil potential is 0.62-0.70 V so casing value is more
3.	0.67	„	IPCL Rly. crossing	1.0		1.27	0.80	Casing removed 4-5/1/2001
4.	1.02	„	**Near Karachiya C.P. Stn.**	1.20	0.40	1.40	0.40	
5.	1.07	„	Northern Township Road	1.00	0.32	1.10	0.41	
6.	1.80		Near Rly. Line Ranoli	1.05	0.27	1.15	0.32	
7.	2.87		Behind godown Ranoli	1.00	–	0.96	–	
8.	3.20		Ranoli NH-8 road crossing	0.96	0.25	0.96	0.30	Bond
9.	4.03		Mini river south bank	0.97	–	0.90	–	
10.	4.80		Mini river north bank	0.90		0.86		
11.	6.00		Nandesari road crossing	1.10		1.05	0.30	
12.	6.97		Field	1.10		1.15		
13.	7.50		**Fazalpur C.P. Stn.**	1.10		1.15		
14.	8.00		Water head works road crossing	1.05	0.22	1.10	0.22	
15.	8.20		Near Fazalpur valve	1.10		1.05	0.30	
16.	8.40		Mahi river valley south bank	----	—	1.10	0.25	
17.	8.45		Mahi river valley south bank (pc)	1.00	–	1.10	0.20	
18.	9.10		Mahi river north bank (pc)	1.04		1.04	0.25	
19.	9.18		Mahi river valley north bank (pc)	1.04	–	1.04	0.15	Bond
20.	9.30		Near O.N.G.C. mainline valve	—	—	1.02	---	
21.	9.38		Road crossing near Mahi river valley	1.03	0.25	1.00	0.25	
22.	10.40		Near Vasad Rly. Signal.	1.04	0.26	1.00	0.26	

23.	11.20		Field	1.05	—	1.05	----	
24.	**12.00**		**Vasad borsad road near Vasad C.P. stn.**	1.15	0.30	1.28	0.42	
25.	13.00		Field	1.10	--	1.15	---	
26.	14.65		Adas Road	1.06	--	1.03	--	
27.	15.10		Adas Borsad cart track	1.02	--	1.03	--	
28.	15.90		Adas Khadol road	1.01		1.02		
29.	17.15		Field	1.00		1.02		
30.	18.15		Adas canal crossing	1.05	0.62	1.07	0.44	Natural Soil potential is 0.62-0.70 V so casing value is more
31.	19.65		Canal crossing Vadod	1.04	0.41	1.05	0.43	
32.	20.00		Field	1.05		1.07		
33.		26.6.02						
34.	**21.35**		**Near O.N.G.C.pump station,Vadod CP**	1.05		1.10		
35.	21.59		Chikhodra canal crossing	1.05		1.07		
36.	22.00		Vadod canal crossing	1.02	0.25	1.05	0.35	
37.	22.60		Field Near Canal	1.00		1.00		
38.	23.50		Field	0.90		0.88		
39.	24.60		Near Krishi vidyalaya farm	0.90		0.88		
40.	25.60		Anand Borsad road crossing	0.95	0.25	0.90		
41.	26.45		Anand Cambay road crossing	1.24	0.25	1.06		Interference due to SMPL C.P.
42.	26.65		Anand Cambay Railway Crossing	0.95	0.25	0.96	0.25	
43.	27.84		Anand Vidynagar road crossing	0.93	0.31	0.93		
44.	28.23		V.V. Nagar Canal crossing	0.93	0.38	0.93		
45.	29.00		Field	1.07		1.05		
46.	30.50		Field near Bakrol Canal N.P.	1.15		1.10		
47.	**31.40**		**Bakrol by the side of the canal & Road &CP**	1.25		1.18		
48.	32.50		Near Bakrol village road	1.21		1.15		
49.	33.17		Field	1.13		1.06		
50.	33.68		Joal Canal Crossing	1.08	0.38	1.01	0.33	
51.	34.67		Jasgaon ,Near well	1.03		0.96		
52.	35.17		Field near Anand – Vadtal road	1.03		0.96	0.57	
53.	36.20		Revaha –Vadtal road	0.96		0.90		
54.	36.96		Vadtal- Sanjaya Road	0.86	0.34	0.86	0.32	Bond
55.	37.80		NearH.T.Tower No.192	0.93		0.90		

56.	38.45		Near H.T. Tower No. 194	0.91		0.91		Bond
57.	38.88		Near H.T. Tower No. 196	0.90		0.90		
58.	39.90		Near H.T. Tower No. 199	0.89		0.89		
59.	40.70		Near Canal Crossing Akhdol	0.98	0.85	1.05	0.65	Natural Soil potential is 0.62-0.70 V so casing value is more
60.	**40.93**		**Nadiyad –Petlad Road, near Akhdol C.P. Station**	1.00	0.32	1.10	0.41	
61.	41.20		Behind ONGC pumpstation Akhdol	1.00		1.13		
62.	42.20		Field	0.95		0.90		
63.	43.10	24/6/02	Field	0.90		0.88		
64.	43.75		Mitral Road crossing	0.95		0.90		
65.	43.90		Canal Crossing Mitral	0.95	0.25	0.95	0.40	
66.	44.80		Field Near Mitral-Piplaj Canal	0.95		0.90		
67.	45.20		Peej-Ramol Road side field	0.93		0.89		
68.	46.20		Peej-Ramol Road	0.96		0.90		
69.	46.80		Field	0.93		0.92		
70.	47.80		Field	1.03		0.98		
71.	48.60		Vaso Rly. Crossing	1.15	0.44	1.07	0.45	
72.	48.88		Field	1.19		1.10		
73.	50.70		Field	1.28		1.15		
74.	**51.70**		**Road Crossing Near Palana C.P. Stn.**	1.50	0.35	1.30	0.50	
75.	52.70		Field	1.05		0.90		
76.	53.60		Canal Crossing Palana	1.05	0.78	1.05	0.52	Natural Soil potential is 0.62-0.70 V so casing value is more(**Bond**
77.	54.00		Field	0.97		0.90		
78.	55.56		Field Near Canal	0.92		0.92		Bond
79.	56.20		NHW Undhel road crossing	0.95	0.52	0.92	0.51	Bond
80.	57.70		Field	0.96		0.89		
81.	58.70		Near Vanagar Village	1.00		0.87		
82.	59.10		NHW Matar Road Crossing	1.00	0.50	0.90	0.47	
83.	60.10		Field	0.95		0.95		Bond
84.	60.90		Canal Crossing Sokhada	1.00	0.45	0.95	0.50	
85.	**61.48**		**Kheda-Sokhada Road**	1.01	0.50	1.00	0.61	

			Crossing Near Sokhada C.P. Stn.					
86.	62.60		Kheda Cambay Road Crossing	1.00	0.31	0.95		
87.	63.00		Vatrak river south bank Crossing	0.98	--	0.97	0.30	Bond
88.	63.20	25/6/02	Vatrak river near insulating flange	0.95		0.93		
89.	63.67	25/6/02	Vatrak river north bank	0.98		0.98		
90.	64.80		NH-Dholka Road Crossing	1.01	0.25	0.97	0.30	
91.	65.00		Field	1.02		0.92		
92.	66.30		Vadala Road Crossing	1.04		0.91	0.25	
93.	67.40		Field/Kachcha Road Crossing	1.06	0.50	0.91		
94.	67.90		NH-Dungari Timba	1.04		0.90		
95.	**68.50**		**Canal Crossing Near Harivala C.P. Stn.**	1.09	0.41	1.00		
96.	69.80		Canal crossing Big	1.10	0.61	0.97		Natural Soil potential is 0.62-0.70 V so casing value is more
97.	71.00		Field	1.04		0.97		
98.	72.00		Field	0.97		0.97		**Bond**
99.	72.83		Nr. Goblej Village Kachcha Rd. Crossing	1.01		0.96		
100.	74.00		Road Crossing nr. O.N.G.C.	1.05		1.03		
101.	74.38	25/6/02	**NavagamtoNHWRoad Crossing CP GGS III**	1.06		1.07		
102.	74.80		Near Canal	1.17		1.10		
103.	75.00		Road Crossing Near O.N.G.C. Oil Well	1.22		1.13		
104.	75.60		Canal Crossing O.N.G.C. Navagam	1.14		1.03		
105.	77.30		Bareja-Navagam Road Crossing Near CTF-O.N.G.C.	1.01	0.34	0.88	0.24	
106.	78.00		Field	1.08		0.89		
107.	**78.30**		Field **Muktipura C.P.**	1.02	-	1.02	-	
108.	78.70		Field	1.03		1.03		
109.	79.00		-	-		-		
110.	79.25		Field	0.98		0.98		
111.	80.15		Bareja-Wasal Road	0.89	0.47	0.85	0.66	**Bond**
112.	81.05		Field	0.89		0.89		
113.	82.05		Field	1.06		0.87		
114.	82.75		Field Near Canal	0.97		0.89		
115.	83.75		Field	1.00		0.92		
116.	83.80							
117.	84.00		**Naaz-Girmatha C.P.**	1.12		1.00		
118.	85.50		Field	0.86		0.86		Bond

119.	86.55		Girmatha Canal Crossing	0.88		0.88	0.38	
120.	**87.50**		**Field Near Paldi-Kankaj C.P. Stn.**	1.10		0.97		
121.	**88.11**		**Near Pirana C.P. Stn. Road Crossing**	1.28	0.37	0.97	0.31	
122.	89.55		Field	1.4		1.14		
123.	90.15		Ahmedabad-Kamod Road Crossing	1.28	0.22	1.08	0.25	
124.	90.45		Sabarmati South Bank	1.22		1.06		
125.	91.30	24/6/02	Sabarmati North Bank	1.26		1.07		
126.	92.20		Field Near Well	1.27		1.03		
127.	93.30		Field	1.22		1.02		
128.	93.80		Field	1.22		1.03		
129.	94.80	24/6/02	Sarkhej-Dholka Road Crossing	1.16	0.48	0.96	0.36	Casing work done June 2001
130.	95.40		Fathewari Canal No.1 Crossing	1.27	0.52	1.02		
131.	96.40		Fathewari Canal No.2 Crossing	1.31.	0.71	1.02	0.67	
132.	97.20		Field	0.86		0.86		
133.	97.70		Sarkhej Rly. Crossing	1.18	0.38	0.94	0.26	
134.	**98.20**		**Road Crossing Near Sarkhej C.P. Stn.**	1.26	0.32	1.06	0.37	
135.	99.00		Behind Sarkhej Brick Factory	1.16		1.00		
136.	100.1		Viramgam road crossing Near O.N.G.C. Pumpstation Sarkhej	1.19	0.36	1.04	0.41	
137.	101.1		Field Behind O.N.G.C. pump station	1.1		1.04		
138.	102.0	24/6/02	Sarkhej-Gandhinagar Road To Mahamadpura	1.00		0.88	0.42	
139.	103.95		Field	1.22		1.13		
140.	**104.0**		**Sarkhej-Gandhinagar Rd. Crossing Near Vejalpur C.P. Stn.**	1.25	0.21	1.15	0.31	
141.	104.8		Field	1.23		1.10		**Bond**
142.	105.3		Agaol Rd. Crossing	1.20	0.28	1.13	0.26	
143.	106.2		Field	1.03		1.03		
144.	107.3		Field Near Vastrapur Village	1.21		1.08		
145.	108.0		Drive-in Cinema Rd.	1.10	0.28	1.06	0.29	
146.	109.0		Field Behind Mehmnagar Society	1.20		1.10		
147.	109.9		Amali Road	1.10	0.31	1.04	0.27	
148.	111.07		Viramgam Rly. Crossing	1.24	0.46	1.23	0.40	
149.	**111.28**		**Viramgam Rly. Crossing.,Pipeline Crossing,Diversion near Ghatlodia C.P.**	1.27		1.26	0.47	

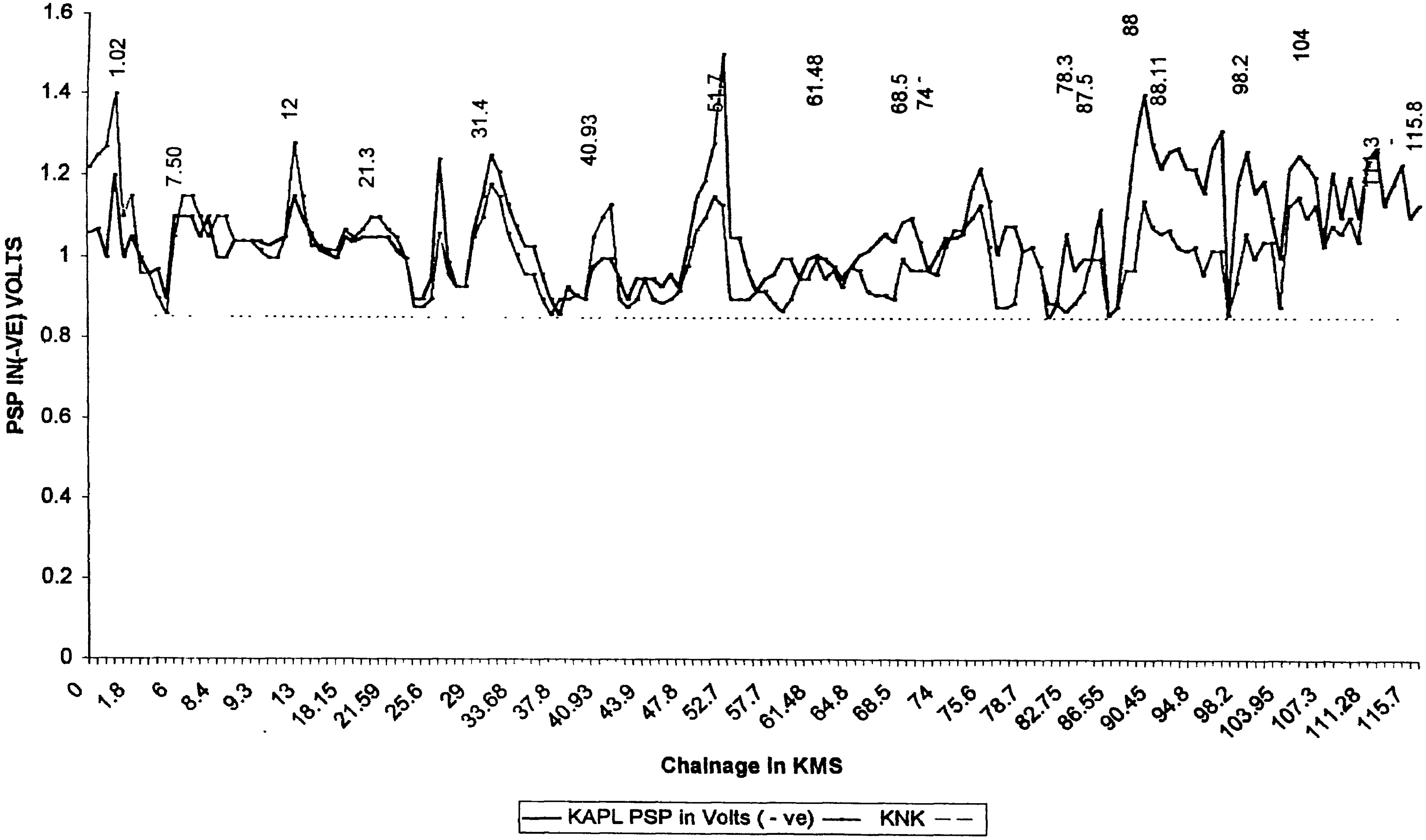
			Stn.					
150.	112.0		Viramgam – Gandhinagar Rly. Crossing	1.13	0.32			
151.	112.15		Kalol-Vadaj Rd. Crossing	1.18	0.32			
152.	113.0		Road Crossing Near Chengpur Village	1.23				
153.	114.8		**Kachcha Road Crossing Near Sabarmati C.P. Stn.**	1.10				
154.	115.7		Sabarmati Terminal Valve	1.13				

Note: Assured that the potential with respect to soil across the Half-Cell is not less than – 0.34V minimum

Technician

SO&ME

QUARTERLY PSP GRAPH JUNE- 02



nexure 5: Consolidated CP report and %age Power availability

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
KOYALI AHMEDABAD PRODUCTS PIPELINE

INSPECTION REPORT OF CP UNITS & PERCENTAGE POWER AVAILABILITY DURING PSP SURVEY QUARTER ENDING Ist (June 2002)

Date	Name of CP Station	KM Ch	DC Volt	DC Amp	Ckt Res	AC Volt	AC Amp	Current Setting Coarse	Fine	PSP Feeding	KAPL	KNK	PSPat nearest KAPL	KNK	Hour Meter 5162	Energy Meter 9212	AVG% Power Avail	ks
25/6/02	Karchhiya	1.02	9.2	17.1	0.53	260	1.3	15	20	1.80	1.20	1.44	1.20	1.40			89.72	GEB Maint
25/6/02	Fazalpur	7.5	11.2	12.6	0.88	217	1.8	2	2	2.15	0.90	1.02	1.00	1.02	15404	8248	72.91	GEB Jumpher blown
25/6/02	Vasad	12.0	8.0	12.0	0.66	245	2	15	12	2.51	1.28	1.33	1.15	1.28	4661	5907	100.00	
25/6/02	Vadod	21.5	7.2	7.2	1.00	250	2	1	3	2.05	1.05	1.17	1.10	1.15	14655	NW	96.35	
25/6/02	Bakrol	31.0	8.5	9.5	0.89	240	2	AUTO		1.85	1.28	1.13	1.30	1.25	38689	29411	89.81	
25/6/02	Akhdol	41.0	28.0	22.0	1.27	240	4	6	6	2.38	1.27	1.24	1.10	1.20	66320	NW	98.14	
25/6/02	Palana	51.0	26.0	27.0	0.96	200	5.0	30	36	2.60	1.46	1.26	1.50	1.30	15609	2760	88.19	
25/6/02	Sokhada	61.5	31.0	27.0	1.14	250	5	3	4	3.02	1.32	1.29	1.01	0.96	27185	22293	79.16	GEB pole disrupted
25/6/02	Hariyala	68.8	12.0	12.8	0.93	250	1	10	4	1.44	1.00	0.81	1.09	1.09	43962	3706	97.50	
25/6/02	Pansoli GGS 3	74.0	5.0	8.0	0.62	250	2.0	4	1	2.50	1.02	1.03	1.06	1.07	96587	1286	97.5	
25/6/02	Muktipura	78.0	9.0	18.0	0.50	260	1.0	0	8	1.70	0.88	0.71	1.02	1.02	2413	1699	99.16	
26/6/02	Naaz	84.0	9.0	15	0.60	230	1.90	0	6	2.50	1.03	0.81	1.20	1.04	39861	5458	96.52	
26/6/02	Paladi kankaj	88.0	4.0	10	0.40	250	1.0	0	4	1.46	1.07	-	1.08	0.97	51067	5532	95.83	
26/6/02	Pirana	88.1	7.0	14.0	0.50	250	0.7	0	10	1.27	0.84	0.63	0.99	0.83	24724	214 NW	90.00	
24/6/02	Surkhej	98.2	7.0	10	0.70	250	2.0	0	6	1.65	1.20	1.05	1.20	1.06	38219	2714	94.79	
24/6/02	Vejalpur	104	10.8	11.3	0.95	230	1.0	10	2	1.76	1.20	1.15	1.38	1.22	37438	4734	100.0	
24/6/02	Ghatlodiya	111	9.7	14.0	0.69	230	1.0	0	10	2.04		1.35	1.26	1.18	1589 nw	3280	95.00	
24/6/02	Sabarmati	115	12.0	10.0	1.20	220	1.0	0	10	1.12	-	-	1.12	-	38740	8973	98.95	

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
KOYALI AHMEDABAD PRODUCTS PIPELINE

INSPECTION REPORT OF CP UNITS & PERCENTAGE POWER AVAILABILITY DURING PSP SURVEY QUARTER ENDING Ist (March 2002)

Sl No.	Date	Name of CP Station	KM Ch.	DC Volt	DC Amp	Ckt Res	AC Volt	AC Amp	Current Setting Coarse	Current Setting Fine	PSP Feeding	PSP KAPL	PSP KNK	PSPat nearest KAPL	PSPat nearest KNK	Hour Meter	Energy Meter	AVG% Power Avail	Remarks
1	26/3/02	Karchhiya	1.02	8.9	17.0	0.52	257	1.3	15	20	1.98	1.33	1.53	1.35	1.48	2858	8211	100.00	
2	07/3/02	Fazalpur	7.5.	10.4	12.0	0.74	210	1.5	2	2	2.3	1.10	1.18	1.10	1.20	13509	7765	74.47	Roasting of G
3	27/3/02	Vasad	12.0	8.0	12.0	0.66	240	2	15	12	2.26	1.15	1.22	1.10	1.20	2888	5570	100.00	
4	27/3/02	Vadod	21.5	3.0	4.5	0.67	250	2	1	1	1.5	1.04	1.08	1.10	1.15	12706	NW	97 91	
5	28/3/02	Bakrol	31.0	6.5	8.0	0.81	230	2	AUTO		1.55	1.17	1.12	1.23	1.16	36505	2914	100	
6	28/3/02	Akhdol	41.0	28.0	22.0	1.27	250	5	6	6	2.25	1.26	1.26	1.05	1.10	64083	NW	100	
7	28/3/02	Palana	51.0	17.0	23.5	0.75	220	5.0	15	28	2.50	1.25	1.20	1.40	1.30	13538	1288	95.13	
8	28/3/02	Sokhada	61.5	25.0	29.0	0.86	250	5	3	3	3.25	1.30	1.30	1.1	1.10	25550	21058	86 11	Roasting of G
9	8/3/02	Hariyala	68.8	10.0	11.6	0.86	260	1	10	2	1.11	0.80	0.54	1.25	1.0	41705	3166	99.66	
10	8/3/02	Pansoli GGS 3	74.0	5	10.0	0.50	260	2.0	4	1	2.77	1.14	1 02	1.22	1.14	94112	633	98 33	
11	8/3/02	Muktipura	78.0	8. 0	12.0	0.66	230	1.0	0	8	1 66	0 89	0 89	1.12	1.12	00000	1055	90 00	
12	8/3/02	Naaz	84.0	6.0	8.5	0.70	250	2.0	0	4	1.89	1 21	0 90	1 29	1 09	38216	1586	97 91	
13	8/3/02	Paladi kankaj	88.0	2.8	3.8	0.73	258	0.8	0	2	1.38	1.3	CUT	1 28	1 14	49238	5460 NW	97 91	
14	8/3/02	Pirana	88.1	5.6	7.0	0.80	255	0.7	0	8	1.54	1 15	0 90	1 25	1 00	60686	204 NW	96 50	
15	6/4/02	Surkhej	98.2	4.6	6. 5	0.70	250	2.0	0	4	1.54	1.29	1.20	1.19	1.1	36487	2531	95.23	
16	8/3/02	Vejalpur	104	11.2	10.2.	1.08.	230	1.0	10	2	1 62	1.15	1 11	1.26	1.26	35294 NW	4421	99 2	
17	8/3/02	Ghatlodiya	111	8. 3	11.0	0.75	230	1.2	0	10	1.61	1.11	---	1.15	1.09	1589 nw	2753	95 00	
8	8/3/02	Sabarmati	115	12.5	11.5	1.08	220	1.0	0	10	----	-	-	1.17	-	36350	8503	89.00	

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
KOYALI AHMEDABAD PRODUCTS PIPELINE
INSPECTION REPORT OF CP UNITS & PERCENTAGE POWER AVAILABILITY DURING PSP SURVEY QUARTER ENDING IV (DECEMBBR -2001)

Date	Name of CP Station	KM Ch.	DC Volt	DC Amp	Ckt Res	AC Volt	AC Amp	Current Setting		PSP			PSPat nearest		Hour Meter	Energy Meter	AVG% Power Avail	Remarks
								Coarse	Fine	Feeding	KAPL	KNK	KAPL	KNK				
21 12 1	Karchhiya	1.02	8.3	17.3	0 48	258	1 4	15	20	1.16	1.11	1.26	1.20	1.20	631	7307	96.35	
13 12 1	Fazalpur	7.5	11 5	14 7	0.78	221	2 1	2	2	1.23	1.10	1.20	1.10	1.20	12012	7318	74.47	Roasting of GEB
18 12 1	Vasad	12.0	8 0	12 0	0.67	245	2	15	12	1 30	1.22	1.33	1 15	1.25	558	5122	93.00	
18 12 1	Vadod	21.5	3 0	4 5	0 67	230	2	1	1	1 1	1.03	1.10	1.10	1.15	NW 11009	NW	95.83	
18 12/1	Bakrol	31.0	5 8	8.0	0.73	230	2	1	2	1.75	1.25	1.20	1 20	1.15	34260	28813	97.61	
21 12 1	Akhdol	41.0	27.0	23.0	1.17	240	4.5	6	6	1.37	1.24	1.27	1.05	1.10	61803	NW	97.22	
20 12 1	Palana	51.0	12.0	22.0	0.55	230	2.0	15	20	2.30	1 28	1.20	1.28	1.20	11299	548	96.87	
22 12.1	Sokhada	61.5	19.0	27.0	0.70	250	3.5	2	4	1.65	1.30	1.40	1.2	1.10	23718	20174	79.16	Roasting of GEB
15.12/1	Hariyala	68.8	10.0	8.5	1.17	250	1	10	4	1.3	0.90	0.60	1.3	1.0	39988	2745	92.50	
10 12 1	Pansoli GGS 3	74.0	6.5	12.3	0.52	255	2.6	4	1	2.9	1.3	1.17	1.3	1.1	92262	194	77.27	Roasting of GEB
10 12/1	Muktipura	78.0	7. 7	11.0	0.70	260	0.9	0	6	1.6	1.06	1.06	1.21	1.21	57013	735	97.22	
10 12/1	Naaz	84.0	5.0	9.3	0.53	240	2.1	0	4	1.9	1.09	0.89	1.3	1.1	36154	4838	98.61	
10 12 1	Paladi kankaj	88.0	2.5	3.0	0.83	230	0 8	0	2	1.4	1.3	1.38	1.3	1.1	47365	5421 NW	100	
10 12 1	Pirana	88.1	6.5	10.0	0.67	255	0.8	0	10	1.7	1 2	0.99	1.25	1.04	58654	-191 NW	100	
15 12.1	Surkhej	98.2	8.0	10.0	0.80	250	1.8	0	6	1.50	1.5	1.15	1.3	1.2	33923	2220	93.33	
15 12 1	Vejalpur	104	13.0	14.4	0.92	220	1.2	10	6	2.0	1.13	1.29	1.3	1.3	33324 NW	4046	95.00	
24 9 01	Ghatlodiya	111	8. 2	11.9	0.68	230	1.0	0	10	1.60	1.1	---	1.18	1.11	1589	2415	95.00	
15 12/1	Sabarmati	115	10.0	9.0	1.1	230	1.0	10	2	----	-	-	1.1	-	34390	8032	93.22	

TECHNICIAN

SO&ME

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
KOYALI AHMEDABAD PRODUCTS PIPELINE
INSPECTION REPORT OF CP UNITS & PERCENTAGE POWER AVAILABILITY DURING PSP SURVEY QUARTER ENDING III (SEPTEMBER 2001)

Sl No.	Date	Name of CP Station	KM Ch.	DC Volt	DC Amp	Ckt Res	AC Volt	AC Amp	Current Setting Coarse	Current Setting Fine	PSP Feeding	PSP KAPL	PSP KNK	PSPat nearest KAPL	PSPat nearest KNK	Hour Meter NW	Energy Meter 6151	AVG% Power Avail	Remarks
1	27/9/01	Karchhiya	1.02	10.0	23.0	0.43	240	1.4	1	3	1.80	1.30	1.30	1.33	1.23	--		94.0	
2	27/9/01	Fazalpur	7.5	11.3	16.2	0.69	210	1.8	2	2	1.20	1.20	1.05	1.14	1.15	10412	6828	90.20	
3	27/9/01	Vasad	12.0	7.5	13.0	0.57	230	2	15	12	1.24	1.09	1.19	1.10	1.20	2026	4789	93.00	
	27/9/01	Vadod	21.5	3.5	5.0	0.70	232	2	1	1	1.50	1.10	1.15	1.10	1.15	9500	NW	86.45	
	27/9/01	Bakrol	31.0	5.8	8.0	0.73	230	2	1	2	1.55	1.08	1.00	1.14	1.10	32495	28570	99.47	
	25/9/01	Akhdol	41.0	28.0	25.0	1.12	230	6	5	5	1.48	1.25	134	1.1 0	1.12	59803	NW	99.16	
	24/9/01	Palana	51.0	9 0	20.0	0.45	210	2.0	15	20	2.81	1.25	1.25	1.25	1.25	9240	9924	93.75	
	24/9/01	Sokhada	61.5	9.5	20.0	0.48	240	2	1	4	1.63	1.43	1.50	1.0	1.0	22075	19644	84.41	Roasting of GEB
	26/9/01	Hariyala	68.8	10.0	8 4	1.19	230	1	10	2	1.15	1.05	0.89	1.25	1.10	38698	2443	89.58	
	26 9 01	Pansoli GGS 3	74.0	5.0	9.0	0.55	240	1.8	10	3	2.45	1.27	1.17	1.32	1.22	90882	555	95.83	
	25/9 01	Muktipura	78.0	7. 0	12 0	0.58	250	1	0	6	1.64	1.06	1 06	1.28	1.28	55271	454	95.83	
	25/9 01	Naaz	84 0	5.0	11.0	0.45	240	1 5	0	4	2.33	1.03	0.89	1.32	1.17	34525	4531	94.16	
	25/9 01	Paladi kankaj	88.0	2.8	4.5	0.62	259	0 8	0	2	1.49	1.38	1.38	1 44	1.25	45595	5381 NW	95.00	
	25 9 01	Pirana	88.1	5.0	10.0	0.50	260	0.7	0	8	1.58	1.17	0 99	1.22	1.00	56885	149 NW	95.00	
	24 9 01	Surkhej	98.2	7.0	8.0	0.87	230	1.9	0	6	1.70	1.19	1.15	1.29	1.16	32767	2040	100.00	
	24.9 01	Vejalpur	104	10.0	12.9	0.77	240	1.0	10	2	1.94	1.36	1.29	1.36	1 36	31404	3714 NW	98.95	
	24/9/01	Ghatlodiya	111	8. 0	11.0	0.72	220	1.0	0	10	1.70	1.09	---	1.13	1.10	0000	2055	96.00	
	24.9 01	Sabarmati	115	10.0	10.0	1.00	220	1.0	0	8	----	-	-	1.09	-	32470	7697	97.91	

TECHNICIAN

SO&ME

Annexure 6: Details of anode bed renovation in June'2002

Details of Anode Bed renovation as on JUNE-2002

SL No	NAME OF CP	KM Ch.	Last Anode done	Anode bed details
1	Karachiya	01.02	Feb , 2000	Lida Deep Anode bed 6 anodes
2	Fazalpur	07.50	June, 93	6"dia scrap pipe of 60 M length
3	Vasad	12.00	May, 95	10 Scrap rails of 60 M Length
4	Vadod	21.000	APR, 99	11 scrap rails of 60 M length
5	Bakrol	31.000	APR , 96	10 Scrap rails of 60 M Length
6	Akhdol	41.000	June , 95	10 scrap Rails of 60 M Length
7	Palana	51.000	APR , 96	10 scrap Rails of 60 Mlength
8	Sokhada	61.480	Feb, 2000	11Scrap rails of 60 M length
9	Hariyala	68.800	Feb , 2000	8No. Canister Drums
10	Pansoli(GGS-III)	74.000	May,95	10 Scrap rails of 60 M length
11	Muktipura	78.000	Feb, 2000	8 No. Lida Canister Drums
12	Naaz	84.000	June ,96	10 Scrap Rails of 60 M Length
13	Pirana	88.120	Feb, 2000	11scrap of 16M length
14	Paladikankaj	88.000	March , 93	6"dia Scrap pipe of 60 M length
15	Sarkhej	98.200	Feb,2000	8 No. Lida canister Drums
16	Vejalpur	104.000	June ,01	6"dia Scrap Pipe of 60 M length +8 Canister type Lida Anode
17	Ghatlodiya	111.000	June, 01	6"dia Scrap pipe of 60 length+8 Canister type Lida Anode
18	Sabarmati	115.500	Jan. , 94	10, Scrap Rails of 60 M length

Annexure 7: Report on internal corrosion monitoring

INDIAN OIL CORPORATION LIMITED
(Pipelines Division)
Koyali Ahmedabad Products Pipeline
PO: Jawaharnagar, Dist: Baroda

Inter Office Memo

From : DGM (KAPL&KNPL) KOYALI **Ref : KAPL/MM/218**
Date: 05/08/2002

For : GM, WRPL GAURIDAD
(ATTN: CTSM, G'DAD)

SUB: CORROSION MONITORING (KAPL)

The report on Internal Corrosion Monitoring of KAPL (Exposure No. 57) for the period **APRIL'2002 to JULY' 2002** is enclosed for information & record please. The Corrosion rate is found to be well with in the limit.

(O.P. SONI)

Encl: As above.

CC: DGM(MNT) PL HO, NOIDA

REPORT ON CORROSION MONITORING OF COUPONS INSERTED AT KOYALI PUMP STATION AND SABARMATI TERMINAL

Exposure No.: 57

Period of Exposure : From 18-04-02 to 24-07-02 = 94 days

Corrosion Inhibitor Used : DCI-6A USA = 6 PPM

Injection Rate :6.0 PPM

Pigging was done last on : 23-04-02 & 02-08-02 (Brush Type)

COUPON DETAILS : *(Before Insertion)*

SR. NO.	LOCATION	LENGTH MM (a)	BREADTH MM (b)	THICKNESS MM (c)	HOLE DIA MM (d)	AREA SQ.MM	WT GMS.
1.	***BOOSTER DISCHARGE HEADER (BEFORE INJECTION)***	73.20	24.75	1.60	12.30	3699.32	20.7512
2.	***NEAR SAMPLING POINT (AFTER SEPARATOR FILTER & STRAINER BUT BEFORE INJECTION)***	73.20	24.65	1.60	12.30	3684.36	20.1815
3.	***NEAR STATION CONTROL PCV VALVE (AFTER INJECTION.***	73.25	24.75	1.60	11.80	3720.88	22.0252
4.	***AT SABARMATI TERMINAL***	73.25	24.80	1.60	12.20	3713.28	21.6121

Contd...2/-

FINDINGS: (Rate of Corrosion in MPY) (After withdrawal)

SR. NO.	LOCATION	WT. OF COUPON BEFORE (GMS)	WT. OF COUPON AFTER (GMS)	WT.LOSS (IN GMS)	CORROSION RATE (MPY)	REMARKS CLASSIFICA-TION OF CORROSION
1.	**BOOSTER DISCHARGE**	20.7512	20.7246	0.0266	0.1399	**LOW**
2.	**AFTER SEPARATOR FILTER (BUT BEFORE INJECTION)**	20.1815	20.1598	0.0217	0.1146	**LOW**
3.	**NEAR STATION PCV (AFTER INJECTION)**	22.0252	22.0158	0.0094	0.0491	**LOW**
4.	***AT SABARMATI***	21.6121	21.6079	0.0042	0.0220	**LOW**

Where

(1) Area : $2 \times \{ (ab+bc+ca) - \frac{3.14}{4} \times (d^2) \}$

$$(2)\ MPY = \frac{\text{Metal Loss in GMS} \times 365 \times 1000 \times 645.16}{\text{Density of Metal} \times 16.4 \times \text{Area} \times \text{Exposure Days}}$$

(3) Where Density of Metal = 7.85 GMS/CC

$$= \frac{1829139.35 \times (\text{Metal Loss in GMS})}{\text{Area} \times \text{Exposure Days}}$$

For Coupon No:1 (MPY)

$$= \frac{1829139.35 \times 0.0266}{3699.32 \times 94} = \mathbf{0.1399\ MPY}$$

For Coupon No: 2 (MPY)

$$= \frac{1829139.35 \times 0.0217}{3684.36 \times 94} = \mathbf{0.1146\ MPY}$$

For Coupon No:3 (MPY)

$$= \frac{1829139.35 \times 0.0094}{3720.88 \times 94} = \mathbf{0.0491\ MPY}$$

Contd..3/-

For Coupon No: 4 (MPY)

$$= \frac{1829139.35 \ X \ 0.0042}{3713.28 \ \ X \ 94} = \mathbf{0.0220 \ MPY}$$

AREA CALCULATION:

EXPOSURE NO: 57

Coupon No:1

$$\text{Area} = 2 \ \{ (ab) + (bc) + (ca) - \frac{3.14}{4} \ X \ d^2) \ \}$$

$$= 2 \ \{ (73.20 \ X \ 24.75 + 24.75 \ X \ 1.60 + 1.60 \ X \ 73.20 - \frac{3.14}{4} x \ (12.30)^2 \ \}$$

$$= 2 \ \{ \ 1811.7 \ + \ 39.6 \ + \ 117.12 \ - \ 118.7627 \}$$

$$= 2 \ (\ 1849.6573)$$

$$= \mathbf{3699.32 \ MM^2}$$

Coupon No: 2

$$\text{Area} = 2 \ \{(ab) + (bc) + (ca) - \frac{3.14}{4} X \ (d)^2 \ \}$$

$$= 2 \ \{ \ (73.20 \ X \ 24.65 + 24.65 \ X \ 1.60 + 1.60 \ X \ 73.20 - \frac{3.14}{4} \ X \ (12.30)^2\}$$

$$= 2 \ \{ \ 1804.38 + 39.44 + \ 117.12 - 118.7627 \ \}$$

$$= 2 \ (\ 1842.1773 \ )$$

$$= \mathbf{3684.36 \ MM^2}$$

Coupon No:3

$$\text{Area} = 2 \ \{(ab) + (bc) + (ca) \ - \ \frac{3.14}{4} X(\ d \ )^2 \ \}$$

$$= 2 \ \{(73.25 \ X \ 24.75 + 24.75 \ X \ 1.60 + 1.60 \ X \ 73.25 - \frac{3.14}{4} \ X \ (11.80)^2\}$$

$$= 2 \ \{(\ 1812.9375 + 39.6 + 117.2 - 109.30)\}$$

$$= 2 \ (\ 1860.4375)$$

$$= \mathbf{3720.88 \ MM^2}$$

Contd..4/-

Coupon No: 4

$$\text{Area} = 2\ \{(ab) + (bc) + (ca)\ -\ \frac{3.14}{4}\ X\ (d)^2\ \}$$

$$= \{(73.25\ X\ 24.80 + 24.80\ X\ 1.60 + 1.60\ X\ 73.25 - \frac{3.14}{4}\ (12.20)^2\ \}$$

$$= 2\ \{(\ 1816.6 + 39.68 + 117.2 - 116.8394)\}$$

$$= 2\ (\ 1856.6406)$$

$$= 3713.28\ MM^2$$

CONCLUSION:

From the above table, the Corrosion rate was compared with classification of Corrosion as per NACE Standard RP-01-75 described in section - 5 under Table – 2.

1. LOW - Less than 1.0 MPY
2. Moderate - 1.0 to 4.9 MPY
3. Severe - 5.0 to 10.0 MPY
4. Very Severe - More than 10.0 MPY

(G.S.SINGH)
Sr. Maintenance Manager.

Annexure 8: Pigging report

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCT PIPELINE
SABARMATI
INTER OFFICE MEMO

FROM SOM, KAPL SABARMATI TO, DGM, KAPL, KOYAL

Ref: KAPL/SBT/OPR/SCRAPPER REPO Date: 7/11/2001

Please find here with given the details of scrapper report for third quarter of 2001. For your record and necessary action.

w.i. No : w/op/17
Revision No: 0
Effective Date: 01/07/[illegible] 97

TITLE: SCRAPPER RECEIVING REPORT

1. Launch from koyali at 16·45 Hrs. On dated 6/11/2001
2. Received at Sabarmati 10·29 Hrs. On dated 7/11/2001
3. Expected time of arrival at 10·15 Hrs On dated 7/11/2001
4. Starting time of derty product 10·27 Hrs.
5. Clear product received at 10·37 Hrs
6. Type and seriel No of Pig Bi-Directional Pig (Imported) without Bru
7. Condition of Pig Pig received in good Condition
8. Foreign material removed NIL
9. Remarks : 03 sample of dirty product and 01 sample after scrapper barrel collected

(Shift Incharge) (Station Incharge)

This was the 1st Bi-Di Pigging done in

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE
SABARMATI

INTER OFFICE MEMO

FROM:-SOM, KAPL, SABARMATI	TO:- DGM, KAPL, KOYALI.

Ref:-KAPL/SBT/SCRAPPER REPO/ Date:- 3/8/2002

Please find herewith given the details of Scrapper report for 1st, 2nd, 3rd 4 quarter of 2002. This is for your record and necessary action

Quaretly Scrapper receiving Report WI/OP

Sr No	Desription
1	Launch from Koyali at:- 16.48 Hrs. on dated- 2/8/
2	Expected time of arrivel:- 11.05 Hrs. on dated- 3/8/20
3	Starting time of dirty products:- 11.12 Hrs.
4	Clear product received at:- 11.17 Hrs.
5	Scrapper received at Sabarmati:- 11.14 Hrs. on dated
6	Type and serial no of Scrapper - [illegible] 810
7	Condition of Scrapper:- Good
8	Foreign material removed - N/A

Remarks:-

Shift Incharge

Station Inchage

FORM NO:-KAPL/OP/17, REVI - EFFECTIVE FROM:-01-01-9

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE
SABARMATI
INTER OFFICE MEMO

FROM:-SOM, KAPL, SABARMATI

TO:- DGM, KAPL, KOYALI.

Ref:-KAPL/SBT/SCRAPPER REPO/ 91

Date:- 24/4/2002

Please find herewith given the details of Scrapper report for 1st, 2nd, 3rd 4rth quarter of 2002. This is for your record and necessary action.

Quaretly Scrapper receiving Report

WI/OP

Sr No	Desription
1	Launch from Koyali at:- 15.20 Hrs. on dated- 23/4/2002
2	Expected time of arrivel:- 11.45 Hrs. on dated- 24/4/2002
3	Starting time of dirty products:- 11.59 Hrs. (Flow Rate 155 Kl/Hr)
4	Clear product received at:- 12.11 Hrs.
5	Scrapper received at Sabarmati:- 12.05 Hrs. on dated 24/4/2002
6	Type and serial no of Scrapper - [illegible]
7	Condition of Scrapper - Good Condition
8	Foreign material removed - NIL

Remarks:-

Shift Incharge

Chakraborty
24/4

Station Inchage

FORM NO:-KAPL/OP/17, REVI -

EFFECTIVE FROM:-01-01-97

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE
SABARMATI
INTER OFFICE MEMO

FROM:-SOM, KAPL, SABARMATI TO:- DGM, KAPL, KOYALI.

Ref:-KAPL/SBT/SCRAPPER REPO/ 936

Date:- 16/01/2002

Please find herewith given the details of Scrapper report for 1st, 2nd, 3rd 4th quarter of 2002. This is for your record and necessary action.

Quaretly Scrapper receiving Report

Sr. No	Desription
1	Launch from Koyali at:- 14 32 Hrs. on dated- 15-1-2002
2	Expected time of arrivel:- 8.30 Hrs. on dated- 16-1-2002
3	Starting time of dirty products:- 8.29 Hrs.
4	Clear product received at:- 8.46 Hrs.
5	Scrapper received at Sabarmati:- 8 36 Hrs. on dated 16-1-2002
6	Type and serial no of Scrapper - Bi directional pig (Inspected)
7	Condition of Scrapper - Pig Received in a good condition
8	Foreign material removed - Nil

Remarks:- 03 samples of dirty products & 01 sample from Scrapper Barrel collected

Shift Incharge
Vethupe

P.Chakraborty 16/01.
Station Inchage

FORM NO:-KAPL/OP/17, REVI - EFFECTIVE FROM:-01-01-97

Annexure 9: Daily line patrolling report

INDIAN OIL CORPORATION LIMITED

KOYALI AHMEDABAD PRODUCTS PIPELINE
P.O. : JAWAHARNAGAR, DIST. BARODA-391 320

इंडियनऑयल

DAILY PATRBLLING REPORT

For ૬-૮-૨૦૦૨/ મંગળવાર

Sr. No. DATE DAY Form No. KAPL/MNT (ML)01

Name of Line Patrolman [illegible] **Effective Date**

Headquarter [illegible] **Patrolling done today**

Jurisdiction ૪૬ Km to ૬૮.૧૬ Km. ૪૬ Kms to ૬૮.૬૦ Kms.

Item to be checked	LOCATION in kms. and Nearby prominent place	DETAIL
Right of Way A) Pipeline Leakage पाईप लाइन लीकेज		નથી
B) i) Washout मिट्टी का कटाव		નથી
ii) Exposed pipeline खुली हुइ पाईप लाईन		નથી
C) Encroachment अवोध कार्यवाही i) New नया		નથી.
ii) Old पुराना	૫૧-૮૦૦/ પાલીયાના રોડ [illegible]	[illegible]
D) Boundry Pillars/km. posts/TPs सीमा पत्थर/कि मी. पोस्ट/टी पी एस i) Damaged क्षतिग्रस्त		બરાબર છે
ii) Missing गुम		બરાબર છે
Crossing क्रॉसींग II Condition of Crossing क्रोसींग की हालत i) Road/Rly Crossing सडक/रेल्वे क्रोसींग		બરાબર છે
ii) River/Canal etc. Crossing नदी/नहर आदि क्रोसींग		બરાબર છે
III C. P. सी.पी. A) C. P. Station i) Condition हालत		બરાબર છે
ii) Meter Reading मीटर रीडिंग		—
iii) Power Supply विधुत प्रवाह		ચાલુ છે
B) Condition of test lead point टेस्ट लीड पोईन्ट की हालत		બરાબર છે
IV Others अन्य A) Mainline valve fencing मेन ल ईन वाल्व/फेन्सिग		
B) વાલ્વ ફેન્સીંગ બરાબર છે.		
C)		

Remarks : टिप्पणी

1) i) Time & mode (Bus, Train etc.) of reaching ROW for Patrolling
राईट-ओफ-वे पर पहुचने का वक्त एव माध्यम (बस ट्रेन आदि) [illegible]

ii) Time & mode of reaching residence after petrolling.
पेट्रोलिंग के पश्चात पर पहुचने का वक्त और माध्यम (बस ट्रेन आदि) [illegible]

2) i) Leave going to take in next 7 days____________
आनेवाले ७ दिनों में लेने की छुट्टी : Date(s) दिनांक

ii) Unreported leave already taken on (only in case of urgency)
बिना सुचित लीं हुई छुट्टी सिर्फ आकस्मिक संजोगो मे ही____________
Date/दिनांक

3) Any other information____________
अन्य विवरण ____________

Sr. Pipeline Engineer
Copy :
1st Copy-Station-in-Charge
2nd Copy-Manager Dy. Manager (Mainine) Base office
3rd Copy-Office Copy for Line Patrolman

Signature of Line patrolman
लाईन पेट्रोलमेन के हस्ताक्षर
[illegible]

FIRST FOLD

अन्तर्देशीय पत्र कार्ड
INLAND LETTER CARD

INDIAN OIL CORPORATION LTD
Koyali-Ahmedabad Product Pipeline
P. O. Jawaharnagar,
Dist. : BARODA-391 320
PIN CODE

RECEIVED
0 AUG 2002

SENDERS'S NAME AND ADDRESS
[illegible]
PIN CODE

INDIAN OIL CORPORATION LIMITED

KOYALI AHMEDABAD PRODUCTS PIPELINE
P.O. : JAWAHARNAGAR, DIST. BARODA-391 320

इंडियनऑयल

DAILY PATRBLLING REPORT

For ૫-૬-૨૦૦૪ [illegible]

Sr. No. DATE DAY Form No. KAPL/MNT (ML)01

Name of Line Patrolman [illegible] Effective Date

Headquarter [illegible] Patrolling done today

Jurisdiction [illegible] Km to [illegible] Km. [illegible] Kms to [illegible] Kms.

	Item to be checked	LOCATION in kms. and Nearby prominent place	DETAIL
Right of Way राईट आफ वे	A) Pipeline Leakage पाईप लाइन लीकेज		નથી
	B) i) Washout मिट्टी का कटाव		નથી
	ii) Exposed pipeline खुली हुइ पाईप लाईन		નથી
	C) Encroachment अवैध कार्यवाही		
	i) New नया		નથી
	ii) Old पुराना		નથી
	D) Boundry Pillars/km. posts/TPs सीमा पत्थर/कि मी. पोस्ट/टी पी पस		
	i) Damaged क्षतिग्रस्त		બરાબર છે
	ii) Missing गुम		બરાબર છે
II Crossing क्रोसींग	Condition of Crossing क्रोसींग की हालत		
	i) Road/Rly Crossing सड़क/रेल्वे क्रोसींग		બરાબર છે
	ii) River/Canal etc. Crossing नदी/नहर आदि क्रोसींग		બરાબર છે
III C. P. सी.पी.	A) C. P. Station		
	i) Condition हालत		બરાબર છે
	ii) Meter Reading मीटर रीडिंग		
	iii) Power Supply विद्युत प्रवाह		[illegible]
	B) Condition of test lead point टेस्ट लीड पोईन्ट की हालत		બરાબર છે
IV Others अन्य	A) Mainline valve fencing मेन ल ईन वाल्व/फेन्सिग		
	B) [illegible] બરાબર છે.		
	C)		

Remarks : टिप्पणी

1) i) Time & mode (Bus, Train etc.) of reaching ROW for Patrolling
राईट-ओफ-वे पर पहुचने का वक्त एव माध्यम (बस ट्रेन आदि)

ii) Time & mode of reaching residence after petrolling.
पेट्रोलिंग के पश्चात पर पहुचने का वक्त और माध्यम (बस ट्रेन आदि)

2) i) Leave going to take in next 7 days____________
आनेवाले ७ दिनों में लेने की छुट्टी : Date(s) दिनांक

ii) Unreported leave already taken on (only in case of urgency)
बिना सूचित लीं हुई छुट्टी सिर्फ आकस्मिक संजोगो मे ही____________
Date/दिनांक

3) Any other information____________
अन्य विवरण____________

Sr. Pipeline Engineer
Copy :
1st Copy-Station-in-Charge
2nd Copy-Manager Dy. Manager (Mainine) Base office
3rd Copy-Office Copy for Line Patrolman

Signature of Line patrolman
लाईन पेट्रोलमेन के हस्ताक्षर

INLAND LETTER CARD
अन्तर्देशीय पत्र

INDIAN OIL CORPORATION LTD.
~~Koyali Ahmedabad Product Pipeline~~
~~P. O. Jawaharnagar~~
~~Dist. : BARODA-391 320~~
PIN CODE

SENDER'S NAME AND ADDRESS
[illegible]
PIN CODE

Indian Oil Corporation Limited
Vadodara
10 AUG 2002
RECEIVED

INDIAN OIL CORPORATION LIMITED

KOYALI AHMEDABAD PRODUCTS PIPELINE
P.O. : JAWAHARNAGAR, DIST. BARODA-391 320

इंडियनऑयल

DAILY PATRBLLING REPORT

For ૨-૧-૨૦૦૨/ બુધવાર

Sr. No. DATE DAY Form No. KAPL/MNT (ML)01

Name of Line Patrolman ~~[illegible]~~ **Effective Date**

Headquarter [illegible] **Patrolling done today**

Jurisdiction ૮૫ **Km to** ૯૧.૧૦ **Km.** ૮૫ **Kms to** ૯૫ **Kms,**

		Item to be checked	LOCATION in kms. and Nearby prominent place	DETAIL
Right of Way राईट ओफ वे	A)	Pipeline Leakage पाईप लाइन लीकेज		નથી
	B)	i) Washout मिट्टी का कटाव		નથી
		ii) Exposed pipeline खुली हुइ पाईप लाईन		નથी
	C)	Encroachment अवैध कार्यवाही		
		i) New नया		નથી
		ii) Old पुराना	[illegible]	
	D)	Boundry Pillars/km. posts/TPs सीमा पत्थर/कि मी. पोस्ट/टी पी एस		
		i) Damaged क्षतिग्रस्त		સલામત છે
		ii) Missing गुम		સલામત છે
Crossing क्रोसींग II		Condition of Crossing क्रोसींग की हालत		
		i) Road/Rly Crossing सड़क/रेल्वे क्रोसींग		સલામત છે
		ii) River/Canal etc. Crossing नदी/नहर आदि क्रोसींग		સલામત છે
C. P. सी.पी. III	A)	C. P. Station		
		i) Condition हालत		સલામત છે
		ii) Meter Reading मीटर रीडिंग		
		iii) Power Supply विद्युत प्रवाह		ચાલુ છે
	B)	Condition of test lead point टेस्ट लीड पोईन्ट की हालत		સલામત છે
Others अन्य IV	A)	Mainline valve fencing मेन ल ईन वाल्व/फेन्सिंग		
	B)	ફેન્સિંગ સલામત છે		
	C)			

Remarks : टिप्पणी

1) i) Time & mode (Bus, Train etc.) of reaching ROW for Patrolling
राईट-ओफ-वे पर पहुचने का वक्त एव माध्यम (बस ट्रेन आदि) બસ ૮=૩૦

ii) Time & mode of reaching residence after petrolling.
पेट्रोलिंग के पश्चात घर पहुचने का वक्त और माध्यम (बस ट्रेन आदि) રીક્ષા. ૨=૪૫

2) i) Leave going to take in next 7 days__________
आनेवाले ७ दिनों में लेने की छुट्टी : Date(s) दिनांक

ii) Unreported leave already taken on (only in case of urgency)
बिना सूचित लीं हुयी छुट्टी सिर्फ आकस्मिक संजोगो मे ही__________
Date/दिनांक

3) Any other information__________
अन्य विवरण__________

Sr. Pipeline Engineer
Copy :
1st Copy-Station-in-Charge
2nd Copy-Manager Dy. Manager (Mainine) Base office
3rd Copy-Office Copy for Line Patrolman

Signature of Line patrolman
लाईन पेट्रोलमैन के हस्ताक्षर

INLAND LETTER CARD

INDIAN OIL CORPORATION LTD.
Koyali-Ahmedabad Product Pipeline
P.O. Jawaharnagar,
Dist. : BARODA-391 320
PIN CODE

RECEIVED
10 AUG 2002

SENDERS'S NAME AND ADDRESS
[illegible]
PIN CODE

Annexure 10: Officers patrolling of Vulnerable ROW

OFFICERS PATROLLING OF VULNERABLE ROW
AND SURPRIZE CHECKING OF LPM
QUARTERLY

SL No.	NAME	Chainage/Location	Name of LPM on duty	Date
1	Shri H G P Tripathi Shri V K Datir	4 03 6 00 7.00-8.00 12.00-13.00 15 00-15 900	------------	19.02 2002
2	Shri B G Reddy Shri Tarun Chopra	21.80 32.50-33 68 34 45 36 96-37.80 38 800	Shri S K Makwana	20 02 200[illegible]
3	Shri H G P Tripathi Shri Lakhmi Chand	41 20 45.20-46 20 48 80 53 40-53 90 56 20 59 10 67 40	Shri F.M Pathan	21 02 2002
4	Shri H G P Tripathi Shri H K Gandhi	69 700-69 90 72 80-74 00 77 30 80 15 84 80-85 30 86 40-86 900 88 110	Shri Md Ali	22 02 2001
5	Shri D A Patel Shri D Thomas	90 150 91 300-92 200 97 700-99 00 101 100 102 000 110 00-112 150 113 00 114 800	Shri Makwana S.K	22 [illegible]

(H. G. P TRIPATHI)

KAPL/ML/404/ Dated 14/06/2002

SUB: -Consolidated report on officer's patrolling of vulnerable area for the Quarter ending May 2002

Attached please find here with the report submitted by each group of officers inspected, the vulnerable area of KAPL, ROW .The findings of the inspection are summarized below for your kind information: -

Date	Chainage in Km		Name of officer	Remarks
	From	To		
29.05.02	4.03	15.90	Sh V.K.Datir H.G.P.Tripathi	Checked & found no abnormal conditions /activities in ROW
29.05.02	21.800	38.800	H.G.P.Tripathi Sh V.K Datir	Checked & found no abnormal conditions/activities.
31.05.02	41.2	67.40	SH. V.K. Datir H.G.P.Tripathi	Checked & found no abnormal conditions/activities
31.05.02	69.7	88.11	H.G.P.Tripathi Shri D.C. Vasawa	Checked & found no abnormal conditions/activities.

The old places of coat and wrap has sagged /settled soil, hence it clearly reveal the location of pipeline rout and is helpful in pilferage /sabotage .It should be r backfilled to avoid such unhappenings in future.

(H.G.P. TRIPATHI)

SMNM

DGM

VULNERABLE AREA

PETROLLING AND INSPECTION OF ROW BY OFFICERS
MAY 2002

ate	KM chainage		Name of officer	Remarks
	From	To		
9.05.02	4.030	-	Sh. V.K.Datir H.G.P.TRIPATHI	Checked & found no abnormal conditions Behind Ranauli near Mini River Minor wash out at 3 locations Drum retention required
	6.000	-	„	Checked & found no abnormal conditions Near Nandeshari Rly -Xing
	7.000	8.000	„	Checked & found no abnormal conditions
	12.000	13.000	„	Checked & found no abnormal conditions
	15.100	15.900	„	Checked & found no abnormal conditions Some of the boundary pillars are missing & a few are damaged & hedges are present in the ROW

Signature

Signature

VULNERABLE AREA

PETROLLING AND INSPECTION OF ROW BY OFFICERS
MAY 2002

Date	KM chainage		Name of officer	Remarks
	From	To		
29.02.02	21.800	-	Sh. V.K. Datir H.G.P. Tripathi	Checked & found no abnormal conditions in ROW near Vadod Canal/Krishi form road sides Crossings
	32.500	33.680	,,	Checked & found no abnormality observed in the stretch, except old sagging of soil on KAPL line
	34.450	-	,,	Checked & found no abnormal conditions Near Jasgaon & well behind Badtal
	36.960	37.800	,,	Checked & found no abnormal conditions
	38.880		,,	Checked & found no abnormal conditions , no abnormality observed in the stretch, except old sagging of soil on KAPL line up to 38.950to39 200 KM

Signature

Signature

VULNERABLE AREA

PATROLLING AND INSPECTION OF ROW BY OFFICERS
MAY 2002

ate	KM chainage		Name of officer	Remarks
	From	To		
1.05.02	41.200	-	SH.V.K.Datir H.G.P.TRIPATHI	Checked & found no abnormal conditions/activities Behind ONGC pump station near AKHDOL C.P.Station
	45.200	46.20	,,	Checked & found no abnormal conditions/activities between Peej Ramol Road field & Peej Ramol Road
	48.880	-	,,	Checked & found no abnormal conditions observed
	53.400	53.900	,,	Checked & found no abnormal conditions/activities casing is 2 feet from GL not painted
	56.200		,,	Checked & found no abnormal conditions /activities
	59.100			Checked & found no abnormal conditions NHW Undel road crossing.
	67.400			Checked & found no abnormal conditions/activities.

Signature

Signature

VULNERABLE AREA

PETROLLING AND INSPECTION OF ROW BY OFFICERS
MAY2002

Date	KM chainage		Name of officer	Remarks
	From	To		
31.05.02	69.700	69.900	H.G.P.TRIPATHI Shri V.K. DATIR	Checked & found no abnormal conditio in ROW.One door panel at Hariyala C.P found broken,near 69 Km fencing work has been done Boundary pillars are in haphazard way due to previous thick babool jungle.
	72.000	74.000	,,	Shrubs & Babool tree in ROW at GGS CP
	77.300	-	,,	Checked & found no abnormal conditio and Babool Shrubs in ROW
	80.15	-	,,	Checked & found no abnormal conditio Shrubs in ROW growing
	84.800	85.300	,,	Checked & found no abnorm conditions/activitiesShrubs in RO growing
	86.400	86.900	,,	Checked & found no abnormal conditio Babool trees are in abundant quanti between Girmitha Canal & Paladikan C.P.
	88.110	-		Checked & found no abnormal conditio Some of the boundary pillars are missi & a few are damaged & hedges a present in the ROW .

Signature

Signature

SURPRISE CHECK OF LPM

Quarterly

Quarter Ending February - 2002

The findings of the inspection are summarized below for your kind information: -

SLNo.	NAME OF OFFICERS	NAME OF LPM's	Chainage due	Date	Remarks
1.	Shri V.K.Datir H.G.P. Tripathi	Shri S.K. Makwana (PeeJ)	31.500-37.00KM	23.02.02	Checked at 34.85KM &not found in duty upto 14.00hrs, Checked at his residence & not found, LPM met me after 14.00hrs at Vvnagar& answered that he is going for duty.

H.G.P. Tripathi Shri V.K.Datir

Annexure 11: Minutes of meeting with the LPM for July'2002

MINUTES OF MEETING HELD WITH LPM ON 16.07. 2002

The meeting was held on 16.07.2002 and presided over by DGM, in presence of the following: -

H.G.P. TRIPATHI (SO&ME)
LPM,s
SHRI S. K.MAKWANA,
SHRI FM PATHAN,
SHRI AHMED ALI &
Shri MAKWANA S.K.

The following points have been discussed during meetings: -

1.DGM strictly advised each of the LPM's to be vigilant in his duty and suggested for preventing the encroachments at any cost & adhere strictly to the LPM schedule.

2.Fencing permission should not be given in common ROW till NOC is obtained.

3. Prior intimation of construction activity should be given such as roads, buildings pits in ROW

4. Surprise checking can take place at any time by different methods. (Pouring product & Excavation) in schedule chainage of the particular Line patrolman.
5. Deviation in duty time must be intimated in well advance telephonically.
6. Status of C.P. functioning (Working / not Working) to be mentioned in every daily report.

LPM.s
Makwana S.K.(SBT)
A) Roadwork is in progress at chainages112 KM, & 106KMs to being checked by SBT .
B) Cable laying work is in progress at chainages 111.5KM, 108KM&106 KM by VSNL to be taken care by SBT.
C) 100 KM (Surkhej _ Sanad Road) Vent pipe shifting to be done by IOCL&ONGC as required .
D) Babool jungle cutting from 97KM to 98KM , letter being written to ONGC,Ahmedabad, for the same , it was discussed with Shri S.R.Trivedi on 24.07.2002.
E) At 104 KM wash out has been created due to AUDA's work, letter being written.
F) At 96.40 KM (FatehwadiCanal-II), the work is being taken through SBT.
G) Boundary Pillars being uprooted/not being installed at 105.4KM, 105.6KM&108.3KM near TV Tower due to local occupants, will be done with the help of Local administration through SBT office.

AHMED ALI:
A) Babool jungle cutting from 72.40-74.30KM,76-77KM &79.80 –80.30KM 98KM , letter being written to ONGC,Ahmedabad, for the same , it was discussed with Shri S.R.Trivedi on 24.07.2002.

B) Soil settled in in gobledge in our chainage in farm of Shri Abbas to be completed after negotiation. (In 100 Metre length & 5 metre width).

Shri F.M. Pathan :
No encroachment in this area .Five Number Electric poles were removed with the help of GEB Kheda with reference to our letter No KAPL/E/CP/Bills dated 13/07/99,demand Note GEB No.023604 dated 02/10/98 & against deposition of Rs 5000=00 dated 04/01/99 vide GEB receipt LUP2790/15609(IOCL D.D.No.577872 dated 04/01/99) near 66.30 KM near Bharat Petroleum Hariyala Bottling Plant.

S.K.makwana(Peej)
A)Letter has been written for the not making metal Road at 26.3 KM by Chaitanya Hari society.
B)Coating & wrapping required at 34.9 KM at V V Nagar –Baro drain crossing & agency being lined up.
C) Letter has been issued for the encroachment at 27.4-KM chainage & fresh notice is being issued.

The meeting started at 0200 hrs and concluded at 17.20hours on 16.07.2002.

(H.G.P. TRIPATHI)
Sr. Opern & Maint Engr.

C.C. DGM , KAPL for kind information please.
SMNM, KAPL for kind information please.
OM (T), SABARMATI, for kind information please.

MINUTES OF MEETING HELD WITH LPM ON 20.05.2002

The meeting was held on 20.05.2002 and presided over by SMNM, in presence of the following

H.G.P. TRIPATHI (SO&ME)
LPM,s
SHRI S. K.MAKWANA,
SHRI FM PATHAN,
SHRI AHMED ALI &
Shri MAKWANA S.K.

The following points have been discussed during meetings: -
1.SMNM strictly advises each of the LPM's to be vigilant in his duty and suggested for preventing the encroachments at any cost & adhere strictly to the LPM schedule.
2.Fencing permission should not be given in common ROW till NOC is obtained

3. Prior intimation of construction activity should be given such as roads, buildings pits in ROW

4. Surprise checking can take place at any time by different methods (Pouring product & Excavation) in schedule chainage of the particular Line patrolman.

LPM.

(5)Encroachments are being stopped by timely actions.

(6) Boundary pillars and Vandal proof TLP's are going to be replaced at the required chainages.

The meeting started at 0200 hrs and concluded at 16.30hours on 20.05.2002.

(H.G.P. TRIPATHI)
Sr. Opern & Maint Engr

C.C. DGM / SMNM/ KAPL for kind information please.
SOM (T), SABARMATI, for kind information please.

Annexure 12: List of leak/burst/pilfergae history of KAPL

9.0 LIST OF LEAK/BURST/PILFERAGE HISTORY OF KAPL

STATION/SECTION : KOYALI to SABARMATI (KAPL)

Sl. No.	Unit	Date	Chainage	Section/ Location	Type	Cause/ Reason
01.	KAPL	10/10/82	86.65 km	Pirana	Pinhole	External Corrosion
02.	KAPL	25/03/83	86.40 km	Pirana	Pinhole	External Corrosion
03.	KAPL	11/04/83	86.60 km	Pirana	Leak	Seam Weld failure during Hydrotest due to external corrosion
04.	KAPL	11/04/83	86.45 km	Pirana	Leak	Seam Weld Failure during Hydrotest due to external corrosion.
05.	KAPL	23/01/99	36.15 km	Nr. Vadtal Temple	Pilferage	Pilferage attempt Leak clamp provided.
06.	KAPL	04/01/2001	0.7 km	IPCL Rly X-ing	Leak From 2 locations as pin hole	-Corrosion of carrier pipe at 2 places under neath of casing. - Casing removed & 2 Nos Leak clamps provided.
07.	KAPL	13/11/2001	80.15 km	Bareja to Basi Road X-ing.	Pilferage	Leak Clamp provided on 13/11/01 & welded on 19/11/01.

(600 meters section from Ch: 86.4Km to 87.0 Km has been replaced in 1993)

Annexure 13: Report on pilferage attempt at chainage 80.15 kms in Nov'2001

KAPL/ML/ Date: 15/11/2001

SUB: PRELIMINARY REPORT ON PILFERAGE ATTEMPT AT CH. 80.15 KM OF KAPL ON 12-13/11/2001.

REPORTING DETAILS: On 12/11/2001 LPM, Mr. Mohamed Ali reported to SOME(Mainline) at 9.00pm that some loose soil has been observed at Ch. 80.15 km. He also reported that he has put bamboo stick inside the loose soil and nothing was observed and nearby Villager/Farmer has told him, it may be a case of burial of human dead body or ONGC might have worked in this area as three lines of ONGC are passing in same ROW.

At 9.30, SOME(M/L) informed to SMNM(under signed) about above report and it was told to SOME(Mainline) that advice LPM to talk u/s. As a precautionary measure, SOME(M/L) was also advised to inform SOM(SBT) for deputing a team in the morning on 13/11/2001. Meanwhile undersigned contacted LPM at 10.30 pm on 12/11/2001 wherein LPM was asked to give the details of Loose Soil length & width and he was not able to confirm.

He was again asked to confirm his observation about his last visit of this stretch on 8/11/2001 & he confirmed that the same was not available on that day. LPM was not able to confirm about any sabotage as per his survey.

Finally LPM was advised to be available at the same spot on 13/11/2001 morning as SBT team reaching at the same place. SOM (SBT) conveyed on 13-11-2001 that team has been send on 13-11-2001 morning.

ACTIVITY ON 13/11/2001

SBT team lead by Shri D.A.Patel reached to the site & made observation by digging 1 Mtr depth. Of loose soil & found some metal part is fitted on the pipe. He contacted SOM(SBT) & in-consultation with SMNM, Koyali (under signed) it was decided to lodge FIR to Aslali Police Station & get the site verified by their Police before taking any action of maintenance by IOCL.

This incidence was observed and confirmed at 12.00 noon, & by 2.00 clock FIR was lodged & police has verified the site.(FIR No. II 111/2001 dated 12-13/11/2001). After 2.30 P.M. maintenance activities of excavation started. SOM (SBT) also reached at site and met to police officials for needful action from his (police) side. At 9.00 clock complete excavation of 3 Mtr x 1 Mtr. trench was opened & pipe got exposed.

OBSERVATION:

Upon excavation two clamps with ball valve fitting was observed & from one valve oil was coming out by operating its handle and from other valve no oil was coming.

Both the clamps were of 3 MM sheet & fitted by bolting on pipe with nipple as fitted on 12.00 clock position & on the top of it threaded ball valve was fitted.

No oil soaked earth was found near pilferage and no tyre mark of vehicle movement mark was observed near site. Even ball fitted on pipe is 1 mtr. below the ground level.

ACTIVITY AT SITE:

At 10.00 clock shut down was taken by depressurising of the line where full line was filled with HSD. Both side valve at Kheda, Watrak River & Kamod was closed. 1 No. leak clamp was fitted & tightness completed without any seepage or sweating on the line. This job was completed at 1.10 am on 14/11/2001. Two teams started opening valve which is located at 20.00km & 15.00km apart from the site.

At 2.40 hours 1 pump started and at 2.50 hours second pump started & found clamp is OK. Further two more hours close observation was kept on site & found every thing normal, and welding of clamp is being taken up on availability of HSD product. Meantime security arrangement at site has been made round the clock .

Put up please.

15/11/01
(G.S.Singh)
SMNM

DGM (KAPL-KNPL) -

DGM (O) WRPL:

GM (WRPL) :

Cc: DGM (O) PL HO Noida

Cc: CMNM PL Ho Noida

Gujarat Pollution Control Board
aryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
hone : 22756, 22095, 22096 Gram : CLEANWATER
ax : (02712) 32156

Annexure 14: Copy of the Air consents

U.P.C.

CONSENT ORDER NO.17370

Consent for operation of the plant under Section 21 of the Air (Prevention and Control of Pollution) Act-1981.

With reference to the consent application No. B-1182 vide letter No.NIL, dated NIL and subsequent correspondence, CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act-1981 (hereinafter referred to as the Act) and the Rules made thereunder to M/s. GUJARAT REFINERY (hereinafter referred to as the 'applicant') authorising them to operate their industrial plants located at P.O. JAWAHARNAGAR, DIST. BARODA. in the Air Pollution Control Areas notified, subject to the conditions stated below :-

The consent order is valid up to 31/7/2002 to operate. industrial plant for the manufacture of following products :

PRODUCTS	QUANTITY MT/MONTH
LPG	71350
BENZENE/TOLUENE	3600/1700
GEN NAPHTHA	109300
MOTOR SPIRIT	78250
MTBE	2650
ATF/SKO	244500
H.S.DIESEL	508850
LSHS/FO	90350
BITUMEN	21350
SULFUR	1600
FOOD GRADE HEXANE	2000
LABFS	4300
GOP NAPTHA	34000
GAP NAPTHA	17000
MTBE	2650

2. The following shall be used as fuel in boiler/furnace.

UNIT	FUEL	QUANTITY/MT/HR.
AU I F1/F2-F5	FURNACE OIL	3.10
	FURNACE GAS	2.1
AU II F1/F2-F5	FURNSCE OIL	3.500
	FURNACE GAS	2.000
AU III F1/F2	FURNACE OIL	1.7
	FURNACE GAS	1.5
CRU	FURNACE OIL	1.5
	FURNACE GAS	2.2
UDEX	FURNACE GAS	1.0
	FURNACE OIL	1.3
AU 4	FURNACE OIL	5.0
	FURNACE GAS	2.0
VDU	FURNACE OIL	1.2
	FURNACE GAS	1.0
VBU	FURNACE OIL	2.3
	FURNACE GAS	1.9
BBU	FURNACE OIL	0.3
	FURNACE GAS	0.3
FPUI	FURNACE GAS	2.4
	FURNACE GAS	1.5
FCCU	FURNACE GAS	0.7
COBOILER	FURNACE OIL	1.4
PDF	FURNACE GAS	0.2
TPS BOILER	FURNACE GAS/FO	1.2/15
FPU II	FURNACE OIL	2.5
	FURNACE GAS	2.7
HCU	FURNACE OIL	4.0
	FURNACE GAS	3.0
HU-1	NG/PG	16.0
CGP	NATURAL GAS	4.2 / 11.7
SUR-1	NG	0.4
AU-V	FURNACE OIL	5.0
	FURNACE GAS	0.5
DHDS	FURNACE OIL	1.0
	FURNACE GAS	0.4
HU-11	FURNACE GAS	2.6
SRU-11	FURNACE GAS	1.0

Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
Phone : 22756, 22095, 22096 Gram : CLEANWATER
Fax : (02712) 32156

3.1 The gaseous emission from various process shall conform to the following standards:

PROCESS UNIT	PARAMETER	EMISSION LIMIT
DISILLATION UNIT (Atmospheric and Vaccum distillation unit)	SO2	0.25 KG/MT OF FEED
CATALYTIC CRACTOR	SO2	2.5 KG/MT OF FEED
SULPHUR RECOVERY UNIT	SO2	120 MT OF SULPHUR IF THE FEED.

3.2. The gaseous emission through stacks/vents attached to various process units shall also conform to the following stadards:

UNIT	STACK ATTACHED TO	STACK HEIGHT IN MTRS.	EMISSION LIMIT SO2 IN KG/HR	NOx KG/HR
1.	2.	3.	4.	5.
AU-1	F-1	36.75		
	F-2	37.10		
	F-3	34.03	68	43
	F-4	34.03		
	F-5	37.33		
AU-2	F-1	36.75		
	F-2	37.10		
	F-3	34.03	44	26
	F-4	34.03		
	F-5	37.33		
AU-3	F-1	36.86	23	14
	F-2	39.88		
CRU	F-1	80.00		
	21F01	32.56		
	21F02	36.56	10	25
	22F01	58.75		
UDEX	-	40.00	12	8
AU-4	712F01	60.00	192	38
VDU	721F01	64.00	53	10
VBU	731F01	64.00	205	40
BBU	F-1	40.00	22	1
	F-2	30.00		
FPU	812F01	62.00	117	25
FOC	CHARGE HEATER	62.00	144	5
	CO BOILER	80.00	157	12
PDF	F-1	30.00	4	NIL
TPS	STACK	60.00	309	180
FPU	03FF001	60.00	60	21
HCU	06FF01/1	60.00		
	06FF003/1	60.00	18	46
SRU-I	STACK	60.00	93	NIL
CPP	STACK	70.00	69	100
AU-V	AV-5	60 M	81	NIL

DHDS	DHDS	60 M	18	NIL
HU-11	HU-11	60 M	31	NIL
SRU-11	SRU-11	68 M	4	NIL

3.3 Total SO2 emission from the refinery shall not exceed 1360 kg/hour.

3.4 Facilities for desulphurisation of flue gas shall be operated very efficiently and continuously.

3.5 DENOx system shall be installed for reduction of NOx emission.

3.6 All stacks shall be smoke free.

4. Agreen belt of 500 meters width shall be developed and maintained all along the periphery of refinery premises.

5. Continuous stack monitoring and ambient air quality monitoring facilities for the measurement of SO2 Hydrocabons.Carbon Monoxide, HCL and NOx shall be provided.

6. Ambient air quality within the premises of refinery shall meet the following requirements at 10 meter away from any vessel, vent, stack etc.

PARAMETERS	PERMISSIBLE LIMIT
Suspended Particulate	500 Microgram/M3
SO2	120 Microgram/M3
NOx	120 Microgram/M3
H2S	100 Microgram/M3
Carbon Monoxide	2000 Microgram/M3
Hydrocarbons	160 Microgram/M3

7. The consent to operate the industrial plant shall lapse if at any time the parameters of the gaseous emission are not within the tolerance limits specified in the condition no.3 and 4 above.

8. The applicant shall at his own cost get samples of emissions collected and analysed from an approved laboratory thrice in a year for the parameters indicated in condition no.4 and 5 and shall submit in duplicate the report there of to the Board by the 10th of the succeeding month. The applicant shall also maintain records of the analytical results properly and shall keep these records/charts open for inspection.

Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
Phone : 22756, 22095, 22096 Gram : CLEANWATER
Fax : (02712) 32156

9. The applicant shall have to make necessary arrangements like port hole and platform with stacks/vents for sampling of gaseous emission for the analysis of various parameters stated in condition no. 3 above.
10. The Environmental management unit/cell shall be set up to ensure implementation and monitoring of environmental safeguards and other conditions stipulated by statutory authorities.The Environmental Management cell/unit shall directly report to the Chief Executive of the organisation and shall work as a focal point for internalising environmental issues. These cells/units shall also co-ordinate the exercise of environmental audit and preparation of environmental statements.

11. The Environmental audit shall be carried out yearly and the environmental statements pertaining to the activities for the year ending on 31st March shall be submitted to the State Board latest by 30th September every year.
12. The stack monitoring systems employed by the applicant shall be open for inspection to this Board at any time.
13. The applicant shall also comply with the General Conditions as per Annexure-I.

14. In case of change of ownership/management the name and address of the new owners /partners/ directors /proprietor should immediately be intimated to the Board.

PENAL PROVISIONS :- If the applicant fails to comply with the conditions of this order and other directives issued by the Board he is liable for prosecution under Section 37,38,39 and other penal provisions of the Act.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(P. S. SHAH)
SR. ENVIRONMENTAL ENGINEER

NO:PC/AIR/VRD-21(3)/ 23679
ISSUED TO :
✓ M/s. GUJARAT FEFINERY
P.O. JAWAHARNAGAR,
DIST. BARODA.

7 SEP 2001

GUJARAT POLLUTION CONTROL BOARD

GENERAL CONDITIONS (AIR CONSENT - No. 1 to 28)

ANNEXURE - I

01. In case of any change either in products, its capacity or manufacturing process, the applicant shall have to obtain prior permission of this Board. The applicant shall not commence the production until consent under Water (Prevention and Control of Pollution) Act-1974, Air (Prevention and Control of Pollution) Act-1981 amd authorisation under the Hazardous Waste (Management and Handling) Rules-1989 is obtained.

02. If the products/process falls in SCHEDULE -I or II of the Environmental Audit Scheme, as specified in the order dated 13.3.97 of Hon. High Court in MCA NO. 326/97 in SCA No. 770/95, the applicant shall also abide by the said scheme.

03. The applicant shall have to register the unit under the provisions of the Factories Act-1948 and shall obtain the necessary factory licence.

04. The applicant shall have to obtain P. L. I. Policy as per P. L. I. Act,1991 and submit the copy of the same to the G. P. C. B.

05. The concentration of Noise in ambient air within the factory premises shall not exceed the following limit.

    Between 6 AM to 9 PM : 75 dB (A)

    Between 9 PM to 6 AM : 70 dB (A)

06. The unit shall have and operate all the requisite equipments/facilities for prevention and control of air pollution fugitive emission and shall operate the same. The unit shall also have stack monitoring facilities. Whenever the equipments/facilities for prevention and control of air pollution are fully or partly nonfunctional, the unit shall close down

all its manufacturing/processing activities and shall not restart its manufacturing/processing activities unless and untill all its air pollution protection and control equipments and facilities including stack monitoring facilities are fully operational.

07. The unit shall, within one week from the date of issue of this order:

a. Put up at the entrance and prominent places boards prominently displaying the name of the unit, particulars of the products/ process and the name of the proprietor/partners/directors of the unit, the electricity consumer number and the name of the electricity consumers as on the record of the GEB.

b.. Make adequate lighting arrangements all around the Air Pollution Control measures and also above the Boards mentioned in the above clause.

08. The unit shall supply to the GPCB the figures of production and consumption of electricity and water for each day during the period of production, though such figures shall be supplied on weekly basis. The unit shall supply separate figures for consumption of electricity for running the Air pollution control measures by having a separate meter/sub meter for each Air Pollution Control measures. The number of units consumed by operating the diesel generating sets, if any, shall also be supplied to the GPCB on weekly basis.

09. The unit shall also supply to the GPCB within one week from the date of the order, the documents regarding monthly production and consumption of electricity in the last six months.

10. The unit shall permit the officers/employees of the GPCB/Govt. Member/s of the Committee appointed by Court. Member/s of the monitoing committee of the Association/s of the Industries to enter the factory premises and to inspect and take samples from the unit at any time without any prior intimation. Any dealy in giving any

of the above persons entry into the tatcory premises or any plant thereof or Air Pollution Control measures shall entail closure of the unit. All the Watchman/Security personnel of the unit shall be immediately appraised of the above.

11. When electricity supply or water supply is disconnected in future on account or non-compliance with the GPCB norms or on account of the closure order, which may be passed by the court or by the Govt./ GPCB under any statutory provisions relating to environmental protection and prevention and control of pollution.

a.) The unit shall not use any diesel generating set or any other alternative source of energy or water tankers from outside for continuing the production activities.

b.) The unit shall pay wages to its workers regularly every month or at such shorter intervals as per the central/practice followed so far.

12. In case of incinerators, the unit shall provide the flow measuring devices for mother liquor, light diesel oil, air used for combustion and temperature measuring devices within incinerators at different points and scrubber. These devices should be provided outside the incinerator. The temperatures as well as flow should be recorded every day.

13. The printed log-books shall be maintained and get it certified for :

    a) Energy Fuel Consumption Raw Material Consumption and quantity of Products manufactured.

    b) Waste water/ gaseous flow at inlet & outlet of E.T.P. & air pollution control measures.

    c) Quantity of sludge generated.

    d) Laboratory analysis/reports for each of the specified parameters of liquid effluents, gaseous discharge and soil sludge sample.

14. The gaseous emission from the various process units should adhere to the air emission standards specified in this order. At no time the emission should go beyond the prescribed standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should be immediately put out of operation and should not be restarted until the control measures are rectified to achieve the desired efficiency.

15. a) Ambient air quality monitoring stations should be set up in the downwind direction as well as at locations where maximum ground level concentration are anticipated. These locations should be fixed in consultation with the GPCB. The number of air quality monitoring stations and frequency of monitoring should be selected on the basis of mathematical modeling to represent short term ground level concentrations, human settlements, sensitive targets etc.

    b) Stack emissions from the boiler and heater should be monitored for SO_2 NO_x Hydro Carbon and SPM and records maintained. On line continuous stack monitoring equipments should be provided for measurement of SO_2 and NO_x.

    c) Data on ambient air quality and stack emission from boiler and heater should be submitted to this Board once in a month along with the statistical analysis and interpretation.

    d) Fugitive emissions should be controlled, regularly monitored and data recorded. The monitored data should be submitted to this Board once in a month.

16. Low NO_x burners should be provided to avoid excessive formulation of NO_x. Only LSHS will be used a fuel during the critical months to ensure that SO_2 levels in the ambient air is within the norm specified.

17. The unit shall make all the requisite arrangements for the safe storage and handling of solid waste including impervious flooring and

leachate collection and the unit shall store and handle solid waste in accordance with the provisions of the relevant rules in their behalf.

18. A secured doublelined landfill should be developed within the plant premises for disposal of solid waste by providing impervious liner and leachate collection system.The leachate shall be taken to the treatment plant for further treatment. In case of specified items or Nepthalene based product and in the case Pescticides waste, the leachate shall be totally incinerated after neutralisation and/or after detoxification treatment. The design of the landfill site should be submitted before commencing the production to this Board and Government.

19. Handling, manufacturing, storage and transport of hazardous chemicals should be in accordance with the Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.

20. The hazardous wastes should be handled as per the Hazardous Waste (Management and Handling) Rules of the Environment (Protection) Act - 1986.

21. On-site and off-site Emergency Plan as required under the Rules 13 and 14 of the Handling, Manufacture, Storage and Import of the Hazardous Chemicals Rules, 1989 should be prepared and approval from the Board should be obtained.

22. A community welfare scheme for improving the socio-economic environment should be worked out and report submitted to the Board and Government for review.

23. Periodical medical check up of the workers should be done and records maintained as a measures to provide occupational health service to the workers.

24. The project authorities should set up laboratory facilities for collection, analysis of samples under the supervision of competent technical personnel who will report to the Chief Executive.

25. The funds earmarked for the Environmental protection measures should not be diverted for any other purpose and yearwise expenditure should be reported to this Board and to the Government.

26. In the event of emission of any air pollution into the atmosphere in excess of the standards laid down by this Board occurance or is apprehended to occur due to accident or unforeseen act or event, the applicant or the person incharge of the premises shall forthwith intimate the fact of such occurance to the Regional Officer of the Board under intimation to the Member Secretary, in accordance with the Section 23 (1) of Air Act.

27. In case of such accident discharge/emission referred in the above condition, the applicant shall take immediate action to bring down the emission level within the limits prescribed in this order.

28. Good house keeping shall be maintained within the factory and in the premises. All hoods pipes, valves shall be leak proof.

jarat Pollution Control Board
ryavaran Bhavan Sector 10-A, GANDHINAGAR-38204
one : 22756, 22095, 22096 Gram : CLEANWATER
x. (02712) 22784

CONSENT ORDER NO.12681

Consent for operation of the plant under Section 21 of the Air (Prevention and Control of Pollution) Act-1981.

With reference to the consent application No.28784, dtd.25/6/99 and subsequent correspondence, CONSENT is hereby granted under Section 21 of the Air (Prevention and Control of Pollution) Act-1981 (hereinafter referred to as the Act) and the Rules made thereunder to M/s. **INDIAN OIL CORPORATION LTD.**, (hereinafter referred to as the "applicant") authorising them to operate their industrial plants located at **SABARMATI TERMINAL STATION, P.O. NEW RAILWAY COLONY, SABARMATI, DIST. AHMEDABAD**, in the Air Pollution Control Areas notified, subject to the conditions stated below

1. This consent order is valid upto 31/7/2005 to operate industrial plant for the transport of various fuel through pipeline from Gujarat Refinery to marketing terminal at SBT

2. There shall be no flue gas emission.

3. There shall be no process emissions.

4. The concentration of the following parameters in the ambient air within the premises of the industry shall not exceed the limits specified hereunder.

PARAMETER	PERMISSIBLE LIMIT
SUSPENDED PARTICULATE MATTER	200 MICROGRAM PER CUBIC METER
OXIDES OF SULPHUR	80 MICROGRAM PER CUBIC METER
OXIDES OF NITROGEN	80 MICROGRAM PER CUBIC METER

5. The applicant shall also comply with the General Conditions as per Annexure-I.

6. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

7. The Concentration of Noise in ambient air shall not exceed the following limits :-

BETWEEN 6 A.M. TO 9 P.M. - 75 dB(A)
BETWEEN 9 P.M. TO 6 A.M. - 70 dB(A)

PENAL PROVISIONS :- If the applicant fails to comply with the conditions of this order and other directives issued by the Board he is liable for prosecution under Section 37,38,39 and other penal provisions of the Act.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(M.L.PATEL)
ENVIRONMENTAL ENGINEER

NO:PC/AIR/ABD-404/

ISSUED TO :
M/s. INDIAN OIL CORPORATION LTD..(PIPELINES),
KOYALI AHMEDABAD PRODUCTS PIPELINE,
P.O. JAWAHARNAGAR,
DIST. BARODA-391 320.

-9 AUG 1999

Annexure 15: Analysis report for stack emissions and AAQ quality at SBT

METRO ENVIRO SYSTEMS

9, [illegible] Apartment, [illegible] Colony, Near Football Ground,
Kankaria, Ahmedabad 380 022
Phone : 5321567 • Tele Fax : 079-5354296 • E-mail : metrosystems@sify.com

Date: 10/08/2002

ANALYSIS REPORT

Name & Address of Industry	M/s. Indian Oil Corporation Limited. *Koyali-Ahmedabad Products Pipeline,* Sabarmati Terminal, Ahmedabad-380019.
Analysis Report Of	*Ambient Air Quality*
Date of Sample Collection	09/08/2002
Sampling Time	10:45 TO 17:15
Duration of Sampling	390 Minutes
Sampling Location	Back Side Of Control Room
Sampling Point Height	2.0 Meter
Name Of Instrument	High Volume Sampler

Concentration	***Flow Rate***	***Result ug/m³***
Suspended Particulate Matter	**1.10 M^3/Min.**	**193**
SO_x	**1.0 LPM**	**08**
NO_2	**1.0 LPM**	**04**

Place: Ahmedabad

For, **Metro Enviro Systems**

METRO ENVIRO SYSTEMS
9, Nemina[illegible] Apartment, [illegible] Colony, Nr. Football Ground,
Kankaria, Ahmedabad - [illegible]
Phone : 5321567 • Tele Fax : 079-5354296 • E-mail metrosystems@sify.com

ANALYSIS REPORT

Date: 10/08/2002

Name & Address of Industry	M/s. Indian Oil Corporation Limited. *Koyali-Ahmedabad Products Pipeline,* Sabarmati Terminal, Ahmedabad-380019.
Stack attached to	D.G.Set
Date & Time of Sample Collection	09/08/2002 12:30 to 13:00
Duration of Sampling	30 Minutes
Sample Collected By	Mr. D. N. Pandya & Mr Kelaram
Stack Temperature ^0C	*132*
Velocity m/s	*22.5*
Stack Height from GL	5 Meter
Iso – Kinetic Flow Rate	4.59 LPM for PM 2.75 LPM for Gas
Total Gas Absorbed	137.7 Litre for PM 82.5 Litre for Gas

Concentration	**Particulate Matter**	**SO_2**	**NO_2**
Result	**131**	**28**	**6**
Unit	**mg/Nm^3**	**mg/Nm^3**	**mg/Nm^3**

Place: Ahmedabad

For. **Metro Enviro Systems**

METRO ENVIRO SYSTEMS
Neminath Apartment, Chinubhai Court, Near Football Ground,
Kankaria, Ahmedabad - 380 022
Phone : 5321567 • Tele Fax : 079-5354296 • E-mail : metrosystems@sify.com

ANALYSIS REPORT

Date: 10/08/2002

Name & Address of Industry	M/s Indian Oil Corporation Limited. *Koyali-Ahmedabad Products Pipeline,* Sabarmati Terminal, Ahmedabad-380019.
Stack attached to	Fire Fighting Machine
Date & Time of Sample Collection	09/08/2002 11:45 to 12:15
Duration of Sampling	30 Minutes
Sample Collected By	Mr. D. N. Pandya & Mr. Kelaram
Stack Temperature °C	*110*
Velocity m/s	*19.12*
Stack Height from GL	5 Meter
Iso – Kinetic Flow Rate	22.64 LPM for PM 2.71 LPM for Gas
Total Gas Absorbed	679.2 Litre for PM 81.3 Litre for Gas

Concentration	**Particulate Matter**	***SO_2***	***NO_2***
Result	**144**	**31**	**5.91**
Unit	**mg/Nm^3**	**mg/Nm^3**	**mg/Nm^3**

Place: Ahmedabad

For, **Metro Enviro Systems**

METRO ENVIRO-CHEM ASSOCIATES

American Quality Assessors

55, Hirabhai Market, D. B. Road, Kankaria,
Ahmedabad-380 022. (INDIA)
Phone : (O) 079-5460862, 5460864, 5467190
Fax : +91-079-5464832

Date 23/05/2002

ANALYSIS REPORT

Name & Address of Industry	M/s. Indian Oil Corporation Ltd. Koyali – A' bad Pipe Line Sabarmati, Ahmedabad		
Stack attached to	Fluid Heater (Fire Fighter)		
Date / Time of Sample Collection	18 / 05 / 02		11:35 to 12:05
Duration of Sampling	30 Minutes		
Sample Collected by	Mr. Nitin Parikh And Mr. Amarsingh		
Stack Temperature ° C	109 ° C		
Stack Height From GL	06 Meter		
ISO - Kinetic Flow Rate	24	LPM For PM	
	03	LPM For Gas	
Total Gas Absorbed	661 1	Liter For PM	
	82 5	Liter For Gas	
Velocity of Flue Gas	18.40	m/s	
Concentration Of	**Results**		**GPCB Limit**
Particulate Matter	101.0	mg / Nm^3	150 mg/Nm^3
SO_2	10 80	ppm	100 ppm
NO_2	0 055	ppm	50 ppm

Place Ahmedabad

Laboratory Executive/ In Charge,
For, **METRO ENVIRO - CHEM ASSOCIATES**

METRO ENVIRO-CHEM ASSOCIATES

55, Hirabhai Market, D. B. Road, Kankaria,
Ahmedabad-380 022. (INDIA)
Phone : (O) 079-5460862, 5460864, 5467190
Fax : +91-079-5464832

Date 23/05/2002

ANALYSIS REPORT

Name & Address of Industry	M/s. Indian Oil Corporation Ltd. Koyali – A' bad Pipe Line Sabarmati, Ahmedabad			
Stack attached to	Generator (D.G.) Set			
Date / Time of Sample Collection	18 / 05 / 02		12:25 to 12:55	
Duration of Sampling	30 Minutes			
Sample Collected by	Mr. Nitin Parikh And Mr. Amarsingh			
Stack Temperature °C	102 °C			
Stack Height From GL	06 Meter			
ISO - Kinetic Flow Rate	05	LPM For PM		
	03	LPM For Gas		
Total Gas Absorbed	138.0	Liter For PM		
	82.8	Liter For Gas		
Velocity of Flue Gas	21.13	m/s		
Concentration Of	**Results**		**GPCB Limit**	
Particulate Matter	112.2	mg / Nm^3	150	mg/Nm^3
SO_2	10.91	ppm	100	ppm
NO_2	0.096	ppm	50	ppm

Place Ahmedabad

Laboratory Executive/ In Charge,
For, METRO ENVIRO - CHEM ASSOCIATES

METRO ENVIRO-CHEM ASSOCIATES

55, Hirabhai Market, D. B. Road, Kankaria,
Ahmedabad-380 022. (INDIA)
Phone : (O) 079-5460862, 5460864, 5467190
Fax : +91-079-5464832

American Quality Assessors

Date 23/05/02

ANALYSIS REPORT

Name & Address of Industry	M/s. Indian Oil Corporation Ltd. Koyali – A' bad Pipe Line Sabarmati, Ahmedabad
nalytical Report of	Ambient Air Quality
Date of Monitoring	18/05/2002
Monitoring Time	10:30 To 17:30
Duration of Sampling	420 Minute
Location of Monitoring	Nr. Main Gate
Sampling Point Height from GL	Ground Level
Instrument	Respirable Dust Sampler

Results:

Sr. No.	PARAMETER	Flow Rate	Concentration µg/m^3	G.P.C.B. Limit µg/m^3
01.	Suspended Particular Matter	1.0 m^3/min	85.7	200
02	Sox	1 0 LPM	23 90	80
03.	NO_2	1.0 LPM	10 96	80

Place Ahmedabad

Laboratory Executive / In Charge,
For, METRO ENVIRO CHEM ASSOCIATES

Annexure 16: Copy of the Water consents

/at Pollution Control Board
/aran Bhavan Sect[illegible] [illegible]ANDHINAGAR-382043.
.ıc : 22756, 220[illegible] [illegible]096 Gram : C[illegible]EANWATER
/. (02712) 22[illegible]

23 SEP 1999

R.P.A.D.

NOTICE

Whereas you were granted consent order No.18506, dated 28/7/99 under the provisions of the Water (Prevention and control of Pollution) Act-1974 for creating/contining an outlet for the discharge of effluent from your industry plant located at KOYALI AHMEDABAD, PRODUCTS PIPELINE, SABARMATI, AHMEDABAD. Subject to the conditions specified therein. Now, in exercise of the powers confirmed by Section 27 of the water (Prevention and Control of Pollution) Act-1974, this notice is served upon you fro reviewing & amending the conditions of the Consent Order No. 18506 dated 28/7/99 as under :

The validity of above mentioned consent order shall be upto 31/7/2005.

The other conditions of the consent order no.18506 dt 28/7/99 shall remain unchanged.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(M.L.PATEL)
ENVIRONMENTAL ENGINEER

NO: PC/ABD/AMC-542/ 28904

Issued to:
M/s. INDIAN OIL CORPORATION LTD.,
KOYALI-AHMEDABAD PRODUCTS PIPE LINE,
P.O. JAWAHARNAGAR,
BARODA.

13 SEP 1999

DMNM:

Gujarat Pollution Control Board

ryavaran Bhavan Sector-10-A, GANDHINAGAR-382043
hone 22756, 22095, 22096 Gram : CLEANWATER
ax (02712) 22784

R.P A.D.

CONSENT ORDER NO. 18506

IN EXERCISE of the powers conferred by Section 26 read with Subsections (1) & (4) of Section 25 of the Water (Prevention and Control of Pollution) Act-1974 (hereinafter referred to as 'the 'Act.')the consent is granted to **M/s. INDIAN OIL CORPORATION LTD.**,(hereinafter referred to as the 'applicant') for the use of the existing/new outlet for the discharge of effluent from **KOYALI-AHMEDABAD PRODUCTS** Pipeline, **SABARMATI, AHMEDABAD** subject to the following conditions :

1. The Consent is valid upto **31/7/2000** for the discharge of effluent arising as a result of the transportation of ~~crude oil~~ product through the above pipeline.

2. There shall be no generation of industrial effluent from the manufacturing process and other ancillary industrial operations

3. Quantity of the sewage shall not exceed **NIL** lit/day.

4. The applicant shall also comply with the General Condition as per Annexure - I enclosed.

5. The Board reserves the right to review and/or revoke the consent and/or make variations in the conditions which the Board deems fit in accordance with section 27 of the Act

6. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

PENALTY PROVISIONS If the applicant fails to comply with the conditions and other directives issued by the Board as laid down in this order, the applicant is liable for prosecution under Section 43 & 44 and other penal provisions of the Act and shall on conviction be liable for punishment and imprisonment as provided in the said Act.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(M.L. PATEL)
ENVIRONMENTAL ENGINEER

NO.PC/ABD-AMC-542/ 26939

ISSUED TO :
M/s. INDIAN OIL CORPORATION LTD.,
KOYALI-AHMEDABAD PRODUCTS PIPELINE,
P.O. JAWAHAR NAGAR, BARODA-391 320.

28 JUL 1999

Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
Phone : 3222756, 3222095, 3222096 Gram : CLEANWATER
Fax : (079) 3232156

No. PC/VRD-2(9)/ 23150

31 JUL 2002

Amendment to Consent Order No.25975
Dated .- 29/11/2001

To,
M/s. GUJARAT REFINERY,
PO. JAWAHARNAGAR,
DIST: BARODA

In Exercise of the powers conferred by Section 26 read with Subsections(1) & (4) of the Water (Prevention and Control of Pollution) Act'1974 (hereinafter referred to as the 'Act') the consent granted to M/s **GUJARAT REFINERY**, (herein after refered to as the 'applicant') for the discharge of effluent form their industrial plant located at **JAWAHARNAGAR, DIST: BARODA** vide this office letter No. PC/VRD-2/35549 with consent order No. 25975 dt. 29/11/2001 [illegible] ammendment for the following conditions only:

1. The validity of the Consent Order No. 25975 dated 29/11/2001 is extended upto 30/7/2003.

2. The other conditions of the consent Order No. 25975, dt 29/11/2001 shall remain unchanged.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(P S SHAH)
SR. ENVIRONMENTAL ENGINEER

Gujarat Pollution Control Board

Paryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
Phone : 22756, 22095, 22096 Gram : CLEANWATER
Fax : (02712) 32156

29 NOV 2001

CONSENT ORDER NO.: 25945

IN EXERCISE of the powers conferred by Section 26 read with Subsections (1) & (4) of Section 25 of the Water (Prevention and Control of Pollution) Act-1974 (hereinafter referred to as the 'Act') the consent is granted with reference to their application No.B-1247 to M/s.GUJARAT REFINERY (hereinafter referred to as the 'applicant') for the use of the existing/new outlet for the discharge of effluent from their industrial plant located at PO. JAWAHARNAGER , DIST, VADODARA. subject to the following conditions :

1. The Consent is valid upto 30/07/2002 f
the manufacture of the following items.

ITEM	CAPACITY
AS PER LIST.	

2. Quantity of the industrial effluent shall not exceed 13680000 lit day..
and that shall be recycled back in process and there shall be no discharge of ind. effluent.

3. Quantity of the sewage shall not exceed 6000000 lit/day

4. The industrial effluent if any shall conform to the following standards :

PARAMETERS	PERMISSIBLE LIMIT	
pH	6.5 to 8.5	
Temperature	40o C	
Colour (pt.co.scale)	100 units	
Suspended Solids	20 mg/l	or 14 kg/1000 tonnes of crude processed.
BOD (5 days at 20o C)	15 mg/l	or 10.5kg/1000 tonnes of crude processed
COD	50 mg/l	
Oil and Grease	10 mg/l	7 kg/1000 tonnes of crude processed
Phenolic Compounds	1 mg/l	0.7 kg/1000 tonnes of crude processed
Ammonical Nitrogen	50 mg/l	
Sulphides	0.5 mg/l	or 0.35kg/1000 tonnes of crude processed
Cyanides	0.2 mg/l	
Flourides	1.5 mg/l	

Bio-assay test : -------- 90 % Survival of fish after
96 hours in 100 % effluent.

Note. The effluent rich in oil & Grease shall be required to be incinerated.

5. All the effluent treatment units shall be operated and maintained efficiently so that the treated effluent always conforms to the specifications referred in condition no.4 above.

6. Sewage shall be disposed of through septic tank/soak pit system or it shall be treated alongwith industrial effluent or it shall be treated separately to conform to the following standards and utilised on land for irrigation/plantation or it shall be discharged into ECP system and shall be conveyed to the estuary of Mahi for final disposal.

BOD (5 days at 20o C)	Less than 20 mg/l
Suspended Solids	Less than 30 mg/l
Residual Chlorine	minimum 0.5 ppm

7. In order to enable the Board to perform its functions of ascertaining the standards of effluent laid down by it for the discharge of the effluent under the condition no.4 of this order are complied with by the Company while causing discharge of effluent, the applicant shall have to submit every month the analysis report of the samples of effluent got collected and analysed by one of the laboratories recognised by the State Board.

8 The Environmental Management Unit/Cell shall be setup to ensure implementation on and monitoring of environmental safeguards and other conditions stipulated by statutory authorities. The Environmental Management Cell/Unit shall directly report to the Chief Executive of the organisation and shall work as a focal point for internalising environmental issues. These cells/units also coordinate the exercise of environmental audit and preparation of environmental statements

9. The Environmental audit shall be carried out yearly and the environmental statements pertaining to the previous year shall be submitting to this State Board latest by 30th September every year

10 The applicant shall also comply with the General Conditions as per Annexure - I enclosed

11 The Board reserves the right to review and/or revoke the consent and/or make variations in the conditions which the Board deems fit in accordance with Section 27 of the Act.

12. In case of change of ownership/management the name and address of the new owners/partners/directors/proprietor should immediately be intimated to the Board.

13 The consent granted shall lapse at at any time if any parameters or any conditions of this consent order are not complied with

14 The consent to operate the industrial plant shall lapse if at any time the parameters of the liquid effluent are not within the tolerance limit specified in the condition no.4 above.

Gujarat Pollution Control Board
Paryavaran Bhavan, Sector-10-A, Gandhinagar-382010.
Phone : 22756, 22095, 22096 Gram : CLEANWATER
Fax : (02712) 32156

PENALTY PROVISIONS :If the applicant fails to comply with the conditions and other directives issued by this Board as laid down in this order, the applicant is liable for prosecution under Section 43 & 44 and other penal provisions of the Act and shall on conviction, be liable for punishment and imprisonment as provided in the said Act.

For and on behalf of
GUJARAT POLLUTION CONTROL BOARD

(P. S. Shah)
SR. ENVIRONMENTAL ENGINEER

NO.PC/VRD/2 /35549
ISSUED TO :
M/s. GUJARAT REFINERY
PO. JAWAHARNAGER. DIST, VADODARA.

29 NOV 2001

Sr. No.	Name of the products	Quantity MT/Month
1	LPG	90342
2.	BENZENE	4590
3	TOLUENE	2160
4.	GEN NAPHTHA	138433
5.	GAP NAPHTHA	21433
6	MS	99090
7.	ATF/SKO	309672
8	LABFS	5400
9.	HSD	644535
10	LSHS/FO	114435
11	BITUMEN	27000
12.	FGH	2520
13.	BUTENE-1	1035
14	MTBE	3330
15	SULPHUR	18486

ANNEXURE - I

GENERAL CONDITIONS :-

1. Arrangement for the measurement of the flow rate of the effluent shall be provided within the terminal man hole near the outlet of the effluent from the factory or premises of the applicant or from the premises of the local body. No effluent shall be admmited in the pipe. Sewer or channel down stream of the flow measurement system or the terminal man hole. No effluent shall find its way to any place other than the collection system desigend & provided for the same. Measurement of flow shall be maintained by the applicant and records shall be available to the officers of the Staff whenever called for.

2. Solid waste arising from the manufacturing process and/or from the treatment of the effluent shall be disposed of by incineration or by sanitary land filling at a site approved by the Board.

3. The applicant shall have to plant atleast 3 variaties of trees along the boundaries of the industrial premises with a density of not less than 1000 trees/acre.

4. Storm water shall not be mixed with the industrial effluent.

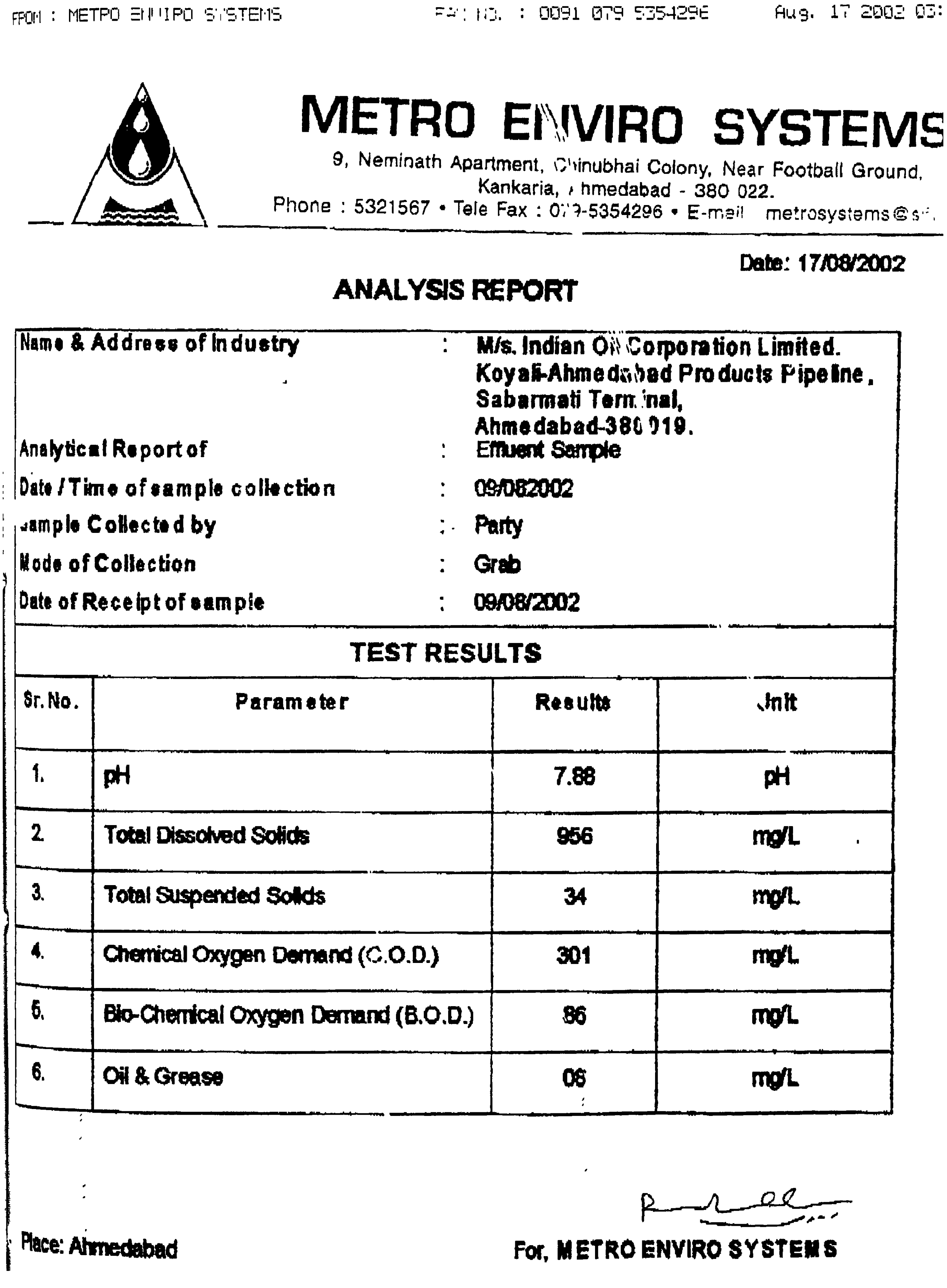
5. Good house keeping shall be maintained within the factory and the industrial premises. All pipes, valves and drains shall be leak proof. Floor washing shall be admmited into the effluent collection system for subsequent treatment and disposal.

6. The applicant shall provide facilities for collection of sample of the effluent by the Staff of the Board.

7. The applicant shall intimate the occurance of any accident, act or event resulting in discharge of poisonous, noxious or polluting matter or the likelihood of the same into a stream or well, to the Regional Officer under the intimation to the Member Secretary in accordance with Section 31 (1) of the Water Act.

8. Clearance shall be obtained from the Chief Inspectorate of Factories in respect of safety measures.

Annexure 17: Analysis report for effluent water quality at SBT



FROM : METRO ENVIRO SYSTEMS FAX NO. : 0091 079 5354296 Aug. 17 2002 03:

METRO ENVIRO SYSTEMS

9, Neminath Apartment, Chinubhai Colony, Near Football Ground,
Kankaria, Ahmedabad - 380 022.
Phone : 5321567 • Tele Fax : 079-5354296 • E-mail metrosystems@s

Date: 17/08/2002

ANALYSIS REPORT

Name & Address of Industry : **M/s. Indian Oil Corporation Limited.**
Koyali-Ahmedabad Products Pipeline,
Sabarmati Terminal,
Ahmedabad-380 019.

Analytical Report of : Effluent Sample

Date / Time of sample collection : 09/082002

Sample Collected by : Party

Mode of Collection : Grab

Date of Receipt of sample : 09/08/2002

TEST RESULTS

Sr. No.	Parameter	Results	Unit
1.	pH	7.88	pH
2.	Total Dissolved Solids	956	mg/L
3.	Total Suspended Solids	34	mg/L
4.	Chemical Oxygen Demand (C.O.D.)	301	mg/L
5.	Bio-Chemical Oxygen Demand (B.O.D.)	86	mg/L
6.	Oil & Grease	06	mg/L

Place: Ahmedabad

For, **METRO ENVIRO SYSTEMS**

KOY 2001

16

Annexure 18: Analysis report for noise levels at Koyali

NIKE ASSOCIATES
CONSULTANTS AND ENGINEERS
B-504, MANUBHAI TOWER, OPP. ARTS COLLEGE, SAYAJIGUNJ, VADODARA-390 005 ✆ 362958 FAX · (0265) 362959
E-mail : nikeass_brd@hotmail.com

G. S. Singh
Sr. Manager Maint.

C.No.BRD/IOC/08/2001/01

REPORT OF SURVEY OF NOISE LEVELS
RULE 102 SCHEDULE XXIII OF GUJARAT FACTORIES ACT.

1. Name of Factory : M/s.Indian Oil Corpn. Ltd.

2. Address of factory : P.O.Jawaharnagar,
Baroda.

3. Survey done : Noise Levels in dB by Technovation
Meter No.078899

4. Noise Levels in dBs at operator's ear level as mentioned below:

	Location	Running/Not Running	Noise Level in dB
(a)	MP-1 Coupling		91.4
	MP-1 Motor End		95.6
	MP-1 Pump End	MP-1 Running	87.8
(b)	MP-2 Coupling		89.7
	MP-2 Motor End		89.2
	MP-2 Pump End	MP-2 Not Running	89.4
(c)	MP-3 Coupling		94.5
	MP-3 Motor end		94.8
	MP-3 Pump end	MP-3 Running	91.8
(d)	MP-4 Coupling		89.8
	MP-4 Motor end		88.8
	MP-4 Pump end	MP-4 Not Running	87.8

(e)	Booster Pump No.1	Running	91.2
(f)	Booster Pump No.2	Running	92.2
(g)	Booster Pump No.3	Not Running	87.1
(h)	Booster Pump No.4	Not Running	84.2
(m)	Platform near HOV- 4		85.4
(i)	Platform near HOV- 5		92.2
(j)	Platform near HOV- 7		90.2
(k)	Platform near HOV- 9		88.8
(l)	Platform near HOV-15		86.7
(n)	Near Separator Filter-2		85.8
(o)	Walkway Near Control Room		84.5
(p)	Control Room		67.5
(q)	Engg. Store Room		68.5
(r)	LT Room (With Door Open)		75.1
(s)	Fencing near CDR Container		64.5
(t)	Road side boundary wall		68.5

I/We certify that on 16.08.2001 I/We thoroughly examined the sound level at the factory mentioned above and the above is the correct report of the findings.

NIKE ASSOCIATES
CONSULTANTS AND ENGINEERS

-504, MANUBHAI TOWERS, OPP. ARTS COLLEGE, SAYAJIGUNJ, VADODARA-390 005 362958 FAX (0265) 362959

C.No.BRD/IOC/07/2000/01

REPORT OF SURVEY OF NOISE LEVELS
RULE 102 SCHEDULE XXIII OF GUJARAT FACTORIES ACT.

1. Name of Factory : M/s.Indian Oil Corpn. Ltd.
2. Address of factory : P.O.Jawaharnagar,
   Baroda.
3. Survey done : Noise Levels in dB by Technovation Meter No.078899
4. Noise Levels in dBs at operator's ear level as mentioned below :

	Location	Running/Not Running	Noise Level dB
(a)	MP-1 Coupling		85.8
	MP-1 Motor End		85.9
	MP-1 Pump End	MP-1 Not Running	85.8
(b)	MP-2 Coupling		88.9
	MP-2 Motor End		89.2
	MP-2 Pump End	MP-2 Under Maintenance	89.1
(c)	MP-3 Coupling		94.1
	MP-3 Motor end		95.2
	MP-3 Pump end	MP-3 Running	91.2
(d)	MP-4 Coupling		97.2
	MP-4 Motor end		96.5
	MP-4 Pump end	MP-4 Running	91.2

G. S. Singh
Sr. Manager Maint.
Indian Oil Corporation Limited

(e)	Booster Pump No.1	Running	88.4
(f)	Booster Pump No.2	Not Running	84.5
(g)	Booster Pump No.3	Running	90.1
(h)	Booster Pump No.4	Not Running	83.5
(m)	Platform near HOV- 4		85.1
(i)	Platform near HOV- 5		86.8
(j)	Platform near HOV- 7		85.5
(k)	Platform near HOV- 9		85.7
(l)	Platform near HOV-15		86.8
(n)	Near Separator Filter-2		84.5
(o)	Walkway Near Control Room		85.2
(p)	Control Room		68.1
(q)	Engg. Store Room		68.5
(r)	LT Room (With Door Open)		75.1
(s)	Fencing near CDR Container		68.2
(t)	Road side boundary wall		66.5

I/We certify that on 27.07.2000 I/We thoroughly examined the sound level at the fact
mentioned above and the above is the correct report of the findings.

Annexure 19: Analysis report for noise levels at SBT

NIKE ASSOCIATES
CONSULTANTS AND ENGINEERS

504, MANUBHAI TOWER, OPP. ARTS COLLEGE, SAYAJIGUNJ, VADODARA-390 005. ✆ : 362958 FAX : (0265) 362959
E-mail : nikeass_brd@hotmail.com

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

C.No.SBT/IOC/08/2001/01

REPORT OF SURVEY OF NOISE LEVELS
RULE 102 SCHEDULE XXIII OF GUJARAT FACTORIES ACT.

1. Name of Factory : M/s.Indian Oil Corpn. Ltd.

2. Address of factory : KAPL, PO. New Rly.Colony,
Ahmedabad.

3 Survey done : Noise Levels in dB by Technovation
Meter No. 078899

4. Noise Levels in dBs at operator's ear level at following locations :

(A) - With D.G.Set/Fire Water Pump Running

	Location	Noise level dB
(a)	D. G. Set at full load	98.2
(b)	Fire Water Pump Running	94.5
(c)	Air Compressor No. 2Running	92.5
(d)	Walk way between Fire Water Pump and Control Room Building	82.2
(e)	Near Seperator Filter	65.5
(f)	Control Room	61.5
(g)	Boundary Wall near D.G. Set	89.7
(h)	On Road outside Boundary Wall near D.G. Set.	68.0

..2

BOMBAY : A-20, Kalpita Enclave, Koldongari, Andheri (E) Mumbai-400 069. ✆ : 8346693. 8218003, Fax : 022-8210590 Telex No 011-79498.
PUNE : 16, Phathak.Baug, Navi Peth, PUNE-411 030. ✆ . 43 2291 - 44 24 22
FELLOW MEMBERS : INST. OF ENGINEERS, INST. OF MECHANICAL ENGINEERS, INDIAN INST. OF PLANT ENGINEERS, INST OF VALUARS NATIONAL SAFETY COUNCIL, INSTITUTION OF INDUSTRIAL SAFETY PROFESSIONALS OF INDIA, NON DESTRUCTIVE TESTING SOCIETY OF INDIA, LOSS PREVENTION ASSOCIATION OF INDIA LTD., INDUSTRIAL SAFETY AND HEALTH ASSOCIATION.
CHARTERED ENGINEERS, SURVEYOR & LOSS ASSESSOR, VALUAR

(i)	Boundary Wall behind Control Room	65.0
(j)	On Road outside Boundary Wall near D.G. Set	59.9
(k)	Battery Limit Gate	61.5
(l)	Boundary Wall behind Administration building	60.5

(B)
- D.G. Set and Fire Water Pump Not Running
- Air Compressor No. 2 Running
- Air Compressor No. 1 Running

	Location	Noise level dB
(a)	Air Compressor No. 2	82.5
(b)	Air Compressor No. 1	77.5
(c)	Walkway near Fire Water Pump	69.2
(d)	Boundary Wall near D. G. Set	69.5

I/We certify that on 17.08.2001. I/We thoroughly examined the sound level at the factor mentioned above and the above is the correct report of the findings.

BOMBAY BARODA PUNE

H. D. DOSHI
CIF / A / CPT / GUJ / 110 / 2000

NIKE ASSOCIATES
CONSULTANTS AND ENGINEERS
B-504, MANUBHAI TOWERS, OPP. COMMERCE COLLEGE, SAYAJI GUNJ, VADODARA 390005. ✆: 362958 FAX : (0265) 362959

C.No.SBT/IOC/08/2000/01

REPORT OF SURVEY OF NOISE LEVELS
RULE 102 SCHEDULE XXIII OF GUJARAT FACTORIES ACT.

1. Name of Factory : M/s.Indian Oil Corpn. Ltd.
2. Address of factory : KAPL, PO. New Rly.Colony, Ahmedabad.
3. Survey done : Noise Levels in dB by Technovation Meter No. 078899
4. Noise Levels in dBs at operator's ear level at following locations :

(A) - With D.G.Set/Fire Water Pump Running

	Location	Noise level dB
(a)	D. G. Set at full load	99.8
(b)	Fire Water Pump Running	98.4
(c)	Air Compressor No. 2 Running	98.8
(d)	Walk way between Fire Water Pump and Control Room Building	87.4
(e)	Near Seperator Filter	69.5
(f)	Control Room	63.2
(g)	Boundary Wall near D.G. Set	89.3
(h)	On Road outside Boundary Wall near D.G. Set.	70.2

(i)	Boundary Wall behind Control Room	79.9
(j)	On Road outside Boundary Wall near D.G. Set	68.0
(k)	Battery Limit Gate	69.8
(l)	Boundary Wall behind Administration building	64.9

(B)
- D.G. Set and Fire Water Pump Not Running
- Air Compressor No. 2 Running
- Air Compressor No. 1 Under Maintenance

	Location	Noise level dB
(a)	Air Compressor No. 2	82.0
(b)	Air Compressor No. 1	79.5
(c)	Walkway near Fire Water Pump	70.1
(d)	Boundary Wall near D. G. Set	69.8

I/We certify that on 05.08.2000 I/We thoroughly examined the sound level at the factory mentioned above and the above is the correct report of the findings.

Annexure 20: Incident repor

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE

INCIDENT REPORT
(OISD FORMET-107)

SR.NO. 02/2002

MONTH- February 2002

S.NO	ITEM	
1.0	ORGANISATION	**PIPELINES IOCL**
2.0	LOCATION	**KOYALI & SABARMATI OF KAPL**
3.0	INSTALLATION	KAPL
4.0	DATE	NIL
5.0	TIME	NIL
6.0	INCIDENT TYPE	NIL
7.0	LOCATION OF INCIDENT (PLANT / AREA / FACILITY)	NIL
8.0	STATUS OF THE PLANT / FACILITY AT THE TIME OF INCIDENT	NIL
9.0	DESCRIPTION OF INCIDENT INCLUDING DAMAGES	NIL
10.0	POST INCIDENT MEASURES	NIL
11.0	**ADDITIONAL INFORMATION IN CASE OF**	
(A)	**FIRE**	NIL
11.1	DURATION OF FIRE	NIL
11.2	SOURCE OF IGNITION FOR THE FIRE	NIL
11.3	SOURCE OF FUEL TO THE FIRE	NIL
11.4	FIRE FIGHTING OPERATIONS	NIL
(B)	ACCIDENT / NEAR MISS	NIL
11.5	SOURCE EQUPMENT	NIL
12.0	**CAUSE OF INCIDENT (Tick Mark)**	NIL
12.1	NON COMPLINCE OF OPERATIONAL /MAINTENANCE / SAFETY PROCEDURES	NOT APPLICABLE
12.2	LACK OF SUPERVISION	NOT APPLICABLE
12.3	IMPROPER INSPECTION	NOT APPLICABLE
12.4	FALL / SLIPPAGE	NOT APPLICABLE
12.5	LACK OF TRAINING	NOT APPLICABLE
12.6	NEGLIGENT DRIVING	NOT APPLICABLE
12.7	NON COMPLIANCE TO WORK PERMIT SYSTEM	NOT APPLICABLE
12.8	FAILURE OF CATHODIC PROTECTION / COATING	NOT APPLICABLE
12.9	PILFERAGE / SABOTAGE	NOT APPLICABLE
12.10	STETIC ELECTRICITY / ELECTROCUTION	NOT APPLICABLE
12.11	LIGHTENING / CYCLONE / ANY OTHER NATURAL CALAMITY	NOT APPLICABLE
12.12	EQUIPMENT FAILURE	NOT APPLICABLE
12.13	ANY OTHER (GIVE DETAILS)	NOT APPLICABLE
13.0	**NO. OF PERSONNEL INJURIED**	NOT APPLICABLE

13.1	COMPANY EMPLOYEES	NOT APPLICABLE
13.2	CONTRACTOR EMPLOYEES	NOT APPLICABLE
13.3	OTHER /OUTSIDER	NOT APPLICABLE
14.0	**LOSS OF LIVES**	
14.1	COMPANY EMPLOYEES	NOT APPLICABLE
14.2	CONTRACTOR EMPLOYEES	NOT APPLICABLE
14.3	OTHER /OUTSIDER	NOT APPLICABLE
15.0	**MAN HOURS LOST (EMPLOYEES)**	NIL
16.0	**DIRECT LOSS**	NIL
16.1	COST OF MATERIAL / EQUIPMENT (RS.LAKHS) (AS PER INSURANCE CLAIM LODGED)	NIL
16.2	SHUTDOWN OF THE PLANT/ OUTAGE OF FACILITY	NO
16.3	IF YES DURETION	NO
17.0	**INDIRECT LOSS THROUGH PUT / POTENTIAL PRODUCTION (Mts.)**	NIL
18.0	**RESPONSE FORM MUTUAL AID MEMBERS**	NIL
19.0	**RECOMMENDATIONS PREVENT RECURRENCE**	NIL
20.0	**REPORT OF INVESTIGATION COMMITTEE (INTERNAL / EXTERNAL)**	NO
21.0	**REMARKS / ANY OTHER INFORMATION**	NIL

ACCIDENT FREE MAN HOURS FOR: **February 2002 12944 hrs**

Signature

(G.S. SINGH)
SMNM

Annexure 21: Report on off-site mock drill (July'2002)

INDIANOIL CORPORATION LIMITED
PIPELINES DIVISION
KOYALI AHMEDABAD PRODUCTS PIPELINE
INTER OFFICE MEMO

FROM :DGM/KAPL&KNPL/ KOYALI
REF : KAPL/ML/MOCK/
DATE : 30.07.2002

TO: GM,WRPL,GAURIDAD

SUB: - Report on off site Mock Drill at Chainage29.30KM near Anand on 17/07/2002(KAPL)

Enclosed please find the off site mock drill report carried out in mainline at chainage 29.30 Km near Anand where in personnel of local police, Fire brigade, sarpanch & villagers participated

During the mock drill, operation of DCP CO2/AFFF was also carried out. This opportunity was also utilized to create environmental awareness among the villagers and pamphlets were also distributed.

(G.P.SONI)

Encl: As above.

Cc: ES to ED (O) PL HO Noida - for favour of kind information please.

cc: SOM (T), SBT.

KAPL / ML /403/ Date 17.07.2002

Subject : REPORT OF MAIN LINE MOCK DRILL *(OFF SITE)* CARRIED OUT ON 17-07-2002.(KAPL)

A mock drill was conducted on main line ROW Chainage 29.300KM, near Bakrol by the side of Lambel-Bakrol-V.V.Nagar road (Lal Thambhala colony side) on 17.07.2002.

Objective of Mock Drill:

- To measure and assess the preparedness to face the real situation in case it arises in the mainline.
- To assess the response time.
- Level of preparedness of the employees
- Identification of the areas of weakness and its improvement
- To impart awareness among the nearby general public about the petroleum pipeline and action during emergency
- To educate the people about different types of the Fire Extinguishers and their uses
- To create awareness about the environment and pollution
- To check the level of inter co-ordination between civil authorities, such as Police, village sarpanch, villagers and local fire brigade services

Planning of Mock Drill:

It was planned mock drill, however it was kept secret. The **first information of the suspected leak (after seeing oil soaked earth in ROU)** was **conveyed by LPM** Shri S.K. Makwana over P&T Telephone to SMNM, KAPL Koyali , and further it was conveyed to DGM(KAPL&KNKPL),KAPL Control room & SBT control room & ONGC,TPL Group, MAKARPURA BARODA .

Product Movement in Mainline :

Koyali - Under pumping HSD - 113
SBT - Under Receipt HSD 113
MT - Whole linefill HSD 113

The chronological events of Mock drill are given below:

10.30 Hrs : A message of suspected leak on the pipeline at the chainage 29.300 KM, Lambvel- Bakrol-V.V.Nagar road (Lal Thambhala colony side) was received by the Senior Maintenance Manager from LPM Shri S.K. Makwana (Base- Peej).

10.32Hrs : It was conveyed to PAM,DMTM,DFM , KAPL control room , & SBT CONTROL ROOM.

10.35Hrs : Message conveyed to SOM-SBT.

10.40Hrs : The search party accompanying with SO&ME (M/L) & Mechanics (Shri M.P. Bodar, & Sh.N.B. Kutchhadiya) moved from KAPL pump station for the suspected leak site with M/L emergency tools & equipments .

11.05 Hrs : Search party moved from GR main gate after making entries in CISF records.
Informed to Central Dispatch Gauridad (Shri D.T. Patel).

12.05Hrs : The search Team accompanying SO&ME (M/L) & Mechanics (Shri M.P. Bodar, Sh. N.B. Kutchhadiya) arrived at the site with M/L emergency equipments such as M/L 8" Valve wheel, Labours, ropes for cardoning area, spades, belcha , Pick Axe, Leak clamps, fire extinguishers, AFFF and required tools and tackles. Informed about arrival to KAPL Control Room.
The search team started locating the suspected leak site.

12.10Hrs : Oil soaked earth was seen in ROW in an area of 2 Sq Mtrs, whose information was conveyed to SMNM KAPL and KAPL Control Room

12.10 Hrs : Informed Local fire station, Sadar ganj ,Anand & local police stn V.V.Nagar, about suspected leak on KAPL & its location Excavation started

12.20 Hrs : Anand Fire Brigade personnel arrived with Fire tender blowing the siren for alertness (3 Fire Persons)

12.25 Hrs : Local police personnel (2 persons) arrived with police Van. Suspected leak site was cordoned off & the villagers gathered were kept away with help of local Police for maintaining Law & order at site " No Smoking Boards " were displayed around the periphery of the leak site. Communication line was established with KAPL control room/SMNM with Mobile phone andfire extinguishers were positioned with personnel surrounding the site

13.00Hrs : During excavation oil soaked earth was seen only upto the depth of nearly 10 cms However excavation was done upto a depth of 50 cms. On seeingclear earth, excavation was stopped

13.05 Hrs : So no leak message was conveyed to KAPL Koyali upon thorough checking and after clearance from Koyali, back filling started.

13.45Hrs : Later on mock fire drill at mainline was conducted with the help of fire tender from Sadarganj Anand & with the help of all the persons. The demonstration of different type of extinguishers such as dry Chemical powder , CO2 extinguishers and use of foam, on Petroleum fire was exhibited . SO&ME (M/L) *educated about the importance of pipeline transportation of petroleum products, safety and security and also appreciated the role of general public during emergency in the mainline.*

The villagers were made aware about the Environment Protection and means and measures to protect and balance the environment by human beings. They were encouraged for more plantation with aim to keep the environment clean.. Booklets and the message on the protection of environment & safety were also distributed.

13 .55Hrs : Mock drill was declared over

SO&ME(M L) extended his thanks to the local public, Sarpanch, Police officials and fire service Deptt for their timely help & full co-operation during the entire drill process . They were also requested to extend similar help in future also in case of crisis.

15.00 Hrs : The site was backfilled and all operations wound up and declared closed

17.00Hrs: : Arrived at the station along with the team & with all returnable materials

The following were present during Mock Drill:

IOCL KAPL:
H.G P.Tripathi SO&ME(M/L)
Shri M.P.Bodar (Mechanic)
Shri N.B Kutchhadiya (Mechanic)
Shri S.D Chaudhary (Equip Operator)

FIRE PERSONNEL
Shri Dharmendra Kumar Gor
Shri Mukesh Patel
Shri Khata Bhai Charpat

POLICE PERSONNEL Shri C.S. Mehra
Shri P.F.Chauhan

Conclusion:

The response time for mobilization of maintenance crew was satisfactory.

The equipments mobilized for the purpose of installation of leak clamp were adequate.

Fire Equipment trial run was taken at site and was found satisfactory.

- LPM of that jurisdiction was found on duty as per schedule .He had reported for the suspected leak at chainage 29.30 KM to SMNM ,KAPL Koyali.

- It took nearly 20 minutes at CISF Main gate " GR " to complete the formalities for taking out the material.

The response time of Fire Brigade, Police personnel and local villagers and Sarpanch was satisfactory and quick.

- The co-operation extended by Police Personnel and Fire Brigade personnel was good and enthusiastic.

The photographs of entire operations of Mock Drill was taken and is enclosed.

(H.G.P. TRIPATHI)
SO&ME

SMNM

DGM (KAPL-KNPL) :

EXCAVATION AT SUSPECTED LEAK SITE IS IN PROGRESS AT CHAINAGE 29.30 KM ON 17/07/2002.

OFFICERS OF IOC, POLICE, FIREBRIGADE & VILLAGERS DISCUSSING ABOUT LEAK SITE & IT'S AWARENESS.

SO&ME EDUCATING USE OF FIRE EXTINGUISHERS FOR AWARENESS AMONGST. POLICE. & VILLAGERS & ABOUT ENVIRONMENT ALSO.

DEMONSTRATION FOR USE OF 10 K.G.
DCP TO VILLAGERS & OTHERS

Annexure 22: Report on the on-site mock drill with GR, GSFC and IPCL

INDIAN OIL CORPORATION LIMITED
(PIPELINES DIVISION)
KOYALI AHMEDABAD PRODUCTS PIPELINE

INTER OFFICE MEMO

FROM: DGM(KAPL&KNPL) KOYAL	TO : DGM(T) PLHO, NOIDA
REF: KAPL/F&S/202	ATTN: CM (S&EP)
DATE: 23/11/2001	

SUB: Major " ON SITE MOCK DRILL" at KAPL Koyali with GR and mutual aid Partner.

The major " ON SITE ;MOCK DRILL" was conducted on 10/10/2001 along with GR and mutual aid partners i.e. GSFC and IPCL. The report on the same is enclosed.

(O.P. SONI)
DGM

CC: GM WRPL, GAURIDAD

INDIAN OIL CORPORATION LTD
KOYALI AHEMDABAD PRODUCT PIPE LINE
KOYALI

NO. – KAPL/F&S/201 **DT. 10.10.2001**

Sub - Mock Fire Drill (MAJOR) under "ON SITE EMERGENCY PLAN"/MUTUAL AID SCHEME. AT KAPL KOYALI

A Mock Fire Drill under "On Site Emergency Plan" / Mutual Aid Scheme was conducted in pump station at KAPL Koyali. This mock drill was conducted to evaluate the emergency preparedness of KAPL as well as GR in case of on-site emergency.

Scenario of Mock Fire Drill -

Normal HSD pumping was in progress with equipment MP-3, MP-4, BP-1and BP-3 running. As planned at 15.00 hrs, foreman who was on routine round observed **smoke and fire** from **Separator filter 1 & 2.** He immediately started **shouting fire, fire** - - to call other personnel, and tried to extinguish the fire by operating DCP 10kg (Sr. no 53) fire extinguisher.

Observers -

For this Mock Fire Drill observers were -

1. Shri V.S.Patel, Sr. Inspector of Factories Baroda
2. Shri C.R.Ananda Rao DGM (Process) Gujarat Refinery
3. Shri O.P.SONI, DGM(KAPL)
4. Shri P.K.Agarwal, MFS Gujarat Refinery

Participants -

1. Operation, Maintenance, P&A and finance personal of KAPL
2. All co-ordinators of "On Site Emergency Plan " of KAPL
3. Fire & Safety Division, GR
4. Medical GR
5. Contractor personnel working in this area
6. Co-ordinators of "On Site Emergency Plan" of GR.
7. C I S F
8. I P C L Fire service
9. G S F C Fire Service

ACTION TAKEN BY KAPL -

1. Foreman in the shift, who observed the fire near **separator filter no 1 & 2,** and shouted **fire-fire** – and tried to call other shift person.
2. Foreman tried to extinguish the fire by operating the fire extinguisher DCP 10-kg (Sr. no. 53.)
3. Shift officer informed to DGM KAPL.
4. Shift officer gave emergency message to Gujarat Refinery Fire Control Room at 1501 hrs.
5. Shift officer informed to Gujarat refinery control room to start the fire fighting pump and maintain fire water line pressure to 7 kg/cm2.
6. Other personnel from operation, maintenance, P&A and Finance rushed to site and participated in the fire drill.
7. Second Fire extinguisher DCP 10 kg (Sr.no.10) was also operated to extinguish the fire.
8. Fire monitor No.1 and fire hydrant no 2 operated to extinguish the fire with the help of water jet and foam which was operated by maintenance persons.
9. The separator vessels under fire were isolated from both sides.
10. G/R OM&S control room was informed to remain alert.
11. Fire Water spray was started on both sides of separator filter to minimise the heating effect to near by running pumps.
12. Fire spray system of control building was started to minimise the heating effect towards control room.
13. Both sides of separator filter were isolated by water curtain to avoid heating effect to pumps.

At this stage SMNM Chief co-ordinator & F&S co-ordinator reviewed the situation and decided to enforce G/R F&S on site as situation was going out of control and leading to major fire. SMNM immediately took following actions.

1. Informed crisis co-ordinator DGM (KAPL/KNPL) for necessary action. DGM immediately took over the charge.
2. Informed GR Fire station regarding the situation, which was out of control and for necessary action.
3. Emergency Shut Down of pumping was taken to minimise the damages. (MOCK)
4. All co-ordinators as per organisation chart for contingencies plan in pump station for KAPL Koyali immediately acted and took position as per plan for duties as mentioned below.

a) **Crisis Co-ordinator (Unit) DGM (KAPL/ K N PL)**
b) Chief co-ordinator SMNM KAPL
c) F&S co-ordinator DM (T&I) KAPL
d) Pump Station co-ordinator shift officer
e) Welfare co-ordinator DMPA, KAPL
f) Material co-ordinator DMTM, KAPL
g) Maintenance Co-ordinator SO M& E (Mait.)
h) Project co-ordinator K N PL F&S co-ordinator DMC (SK)

A fire call was made on telephone no. 7333 from KAPL to GR Fire & Safety who immediately swung into action and following actions were taken -

RESPONSE TIME

1. With in 1 minute all members of KAPL, K N PL and SMPL were near site.
2. With in 3 minutes of fire reporting, GR fire tenders reported at site.
3. With in 5 minutes I P C L fire tenders reached to main gate of GR and kept Waiting as stand by which was informed by GR under **mutual aid scheme.**
4. .One fire tender from GSFC reported late at GR main gate due to closed Bajwa Railway X-ing.

At 1510 hrs fire site was handed over to GR fire wing, the fire being major.

Action Taken by G/R Fire & Safety wing –

1. Two fire tenders were despatched immediately from GR.
2. GHC pump house was alerted.
3. Fire Control Room as per procedure informed RSM, CISF and Medical, deptt. and Time Office.
4. DGM (P N) / GM (T) and ED of GR were also informed as per procedure.
5. All other officials were also informed by operating Common Fire Call system as per instruction of MFS.
6. At site following actions were taken

    - Foam lines were laid from both fire tenders and foam was applied without wasting the time.
    - Other near by pumps, pipelines as well as structures were cooled with the help of nearby firewater monitors.
    - Two lines were laid from hydrants and used for cooling purpose with the help of CISF personnel.
    - Two causalities were removed with the help of CISF and sent to GR hospital in ambulance.
    - Two water curtains were formed at the northern and southern side to protect the nearby facilities.

At this time whole situation was again reviewed under the guidance of DGM (KAPL/ K N P L) and DGM (P N). As per the site condition it was decided to enforce "ON SITE EMERGENCY PLAN" to take help from Mutual Aid Members. Following additional actions were taken –

1. Two Additional Fire tenders were called by GR, fire department from mutual aid partners.
2. SOS message was given to all on common fire call as well as on common pager.
3. GR Siren was not blown as per the decision.
4. Additional CISF manpower was called to strengthen the fire fighting operation.
5. SOS message given to IPCL and GSFC through hot lines by GR.

Immediately after getting the message, two GR fire tenders reported at site and lines were laid to cover the northern side of pump house. IPCL fire tender reported at GR main gate within 5 minutes and GSFC fire tender reported late due to Railway Crossing. CISF additional manpower reported at site and rendered help in fire fighting. The co-ordinators of ON SITE EMERGENCY PLAN immediately acted and taken position as per plan.

Actions taken by CISF -

1. Whole area was cordoned off by the CISF and all traffic other than emergency vehicles was diverted to other roads.
2. CISF personnel removed two causalities.
3. CISF personnel extended the help in fire fighting operation.
4. Dy. Commandant and all four Inspectors reached at site to asses the situation.
5. Additional Security measures were taken at all three gates under the guidance of Commandant CISF. CISF commandant was on the gate and in touch with site and Main co-ordinator.

Action taken By Medical - Team

1. One Ambulance reported at site immediately.
2. Two causalities were removed and transported to the hospital.
3. After dropping the causality at Hospital, Ambulance again reported at site.
4. Doctors were ready at Hospital emergency ward.
1. Apart from this, two ambulances were kept ready as stand by at GR Hospital.

The Mock drill was declared over at 15.20 hrs.

TRAFFIC / SECURITY CO-ORDINATOR: COMMANDANT – CISF

- REPORTED AT MAIN GATE AFTER GETTING THE MESSAGE

ACTIONS –

1. CISF PERSONNEL DEPUTED FOR HELP IN FIRE FIGHTING / RESCUE WORK
2. TRAFFIC CONTROL WAS DONE INSIDE & OUTSIDE REFINERY
3. AREA WAS EFFECTIVELY CORDONED OFF.
4. APPROACH ROADS TO SITE WERE CLOSED FOR NORMAL TRAFFIC AND TRAFFIC WAS DIVERTED TO OTHER ROADS.
5. CO-ORDINATION WITH POLICE WAS DONE
6. MOVEMENT OF VEHICLES WAS ORGANISED.
7. SECURITY AT ALL GATES WAS TIGHTENED AS PER THE PREVAILING SITUATION.

Mock drill was declared over at 15.20 hrs. Followed by all clear messages on common fire call and common pager.

OBSERVATIONS

This Mock drill was conducted to asses the emergency preparedness of Gujarat Refinery and KAPL. After the mock drill, briefing session was organised at KAPL conference Hall and addressed by observers and Commandant CISF. The main observations are –

1. Response of various groups including operating groups was excellent and worked as a team.
2. The action taken at site were adequate and as per site requirement.
3. The operating and Maint. Group reported well in time and taken action as per site requirement.
4. The observer in Fire Control Room was satisfied with the action taken by Control Room in-charge.
5. The Observers were satisfied by the action taken by KAPL On Site Emergency Plan Co-ordinators.
6. Fire fighting systems provided in KAPL worked well.
7. Role Of co-ordinators as per "**ON SITE EMERGENCY PLAN**" of GR during the mock drill was highly impressive.
8. Response time of IPCL Fire tender was satisfactory while GSFC was late due to railway Crossing.
9. Response time of Ambulance was also satisfactory.
10. Action taken by CISF group was highly impressive and prompt.

THE OBSERVERS RECOMMENDED FOLLOWING POINTS FOR FURTHER IMPROVEMENT

- The condition of Road No.-8 is very poor especially in front of KAPL. In needs to be improved on priority.
- The water pressure in fire water line inside KAPL was not adequate with 2 nozzles in service. DGM (KAPL) informed that already action has been taken and new line of higher size with closed loop connection is being laid to improve the situation.
- The weather protection arrangement (concrete Jalli) in pump house of KAPL obstructs the foam jets at the time of emergency. It must be removed / rectified.
- With the addition of another pump house for KNPL, the site will become too congested and fire fighting will be very difficult as approach can be made only from northern side. There is no approach from southern side / western side.
- The only approach road to KAPL is very narrow and only one vehicle can move at a time. Due to this, ambulance could not be moved out quickly to transport casualty, as fire tender blocked the road. Therefore, road needs to be widened.
- Whole operation was continued only for app. fifteen minutes with four jets in operation, which is very normal. Lot of water gets accumulated in the surrounding area as well as on the road. It requires to be reviewed and proper draining arrangement to be made.
- The location of control room needs to be reviewed as it is very close to pump house.
- Second entry/ exit for KAPL premises needs to be thought of from safety point of view.

Shri V.S.Patel, Sr. Inspector of Factories, addressed the gathering and appreciated the efforts. He explained the importance of "ON SITE EMERGENCY PLAN" and stressed the need to conduct this type of mock drill on regular basis. He thanked IOCL (KAPL & GR) authorities for this opportunity and efforts. Overall observations were found satisfactory.

(Lakhmi Chand)
DM (T&I)
F&S Co-ordinator

SMNM KAPL

DGM KAPL/ K N PL

GM WRPL

Ref No : KAPL/SBT/F&S/ 1205 **Date : 31/7/02**

SUB : Report on surprise Mock Fire drill & Safety Committee / Security / Environment meeting

Mock Fire drill conducted at Sabarmati Terminal on 31/7/02 at 10.45 hrs Target point fixed near Marketing fencing. FH-03 operated with foam and water. Fire drill was followed by discussion / meeting on Safety / Security and Environment.

Name of Employees participated

(1) Sri. Parth Chakraborty
(2) Sri. D A Patel
(3) Sri. D Thomas
(4) Sri. M C Parmar
(5) Sri. G P Malek
(6) Sri. N M Makwana
(7) Sri. P H Ahir
(8) Smt. V R Rayjada

Safety / Security

(1) New Security Cabin has started functioning.
(2) Main gate has been modified and separate wicket gate provided for movement of people.

Environment

(1) New station bypass line laid in view of the last year leakage .
(2) Main entrance lawn and flower bed developed.

Thomas
(D THOMAS)
O&ME

Annexure 23: Report on Inspection of Fire fighting and safety equipments

INDIAN OIL CORPORATION LIMITED

KOYALI AHMEDABAD PRODUCTS PIPELINE

MONTHLY REPORT ON INSPECTION OF FIRE FIGHTING EQUPMENT & SAFETY EQUIPMENTS

UNIT: KAPL STATION: KOYALI/SAB MONTH: December- 2001

SR.NO	DESCRIPTION OF ITEMS	KOYALI		SABARMATI		REMARKS
A	**FIRE EXTINGUISHERS**	QTY.	STATUS	QTY.	STATUS	
a)	Dry Chemical Powder Type.					
i	2 kg capacity	Nil	--	--	--	
ii	5 kg capacity	Nil	--	--	--	
iii	10 kg capacity	22	OK	19	OK	
iv	22.5 kg capacity	Nil	--	--	--	
v	25 kg capacity	5	OK	--	--	
vi	50 kg capacity	Nil	--	--	--	
vii	70/75 kg capacity	4	--	2	OK	
b)	Carbon Di-oxide type					
i	2.2 kg capacity	3	OK	7	OK	
ii	3.2 kg capacity	Nil	--	--	--	
iii	4.5 kg capacity	8	7 OK	7	OK	1 U/Refilling
vi	6.8 kg capacity	5	4 OK	1	OK	1 U/Refilling
v	9 kg capacity	3	--	6	OK	
vi	45 kg capacity	2	U/M	--	--	Pr. Test
c)	Halon type					
i	500 mg capacity	Nil	--	--	--	
ii	1.25 kg capacity	Nil	--	--	--	
iii	2.5 kg capacity	Nil	--	--	--	
B.	**HOSES/NOZZLES/ ACCESSORIES**					
i	Universal (triple Purpose) Branch	4	OK	4	OK	
ii	London type hand controlled Branch	3	3 OK	4	OK	
ii	Standard Branch	4	OK	--	--	
iv	Fog Nozzle	4	OK	4	OK	
	Foam Making Branch					
	FB-5X	4	OK	1	OK	
	FB-10X	4	OK	3	OK	
	FB-20X	Nil	--	--	--	

13.1	COMPANY EMPLOYEES	NOT APPLICABLE
13.2	CONTRACTOR EMPLOYEES	NOT APPLICABLE
13.3	OTHER /OUTSIDER	NOT APPLICABLE
14.0	**LOSS OF LIVES**	
14.1	COMPANY EMPLOYEES	NOT APPLICABLE
14.2	CONTRACTOR EMPLOYEES	NOT APPLICABLE
14.3	OTHER /OUTSIDER	NOT APPLICABLE
15.0	**MAN HOURS LOST (EMPLOYEES)**	NIL
16.0	**DIRECT LOSS**	NIL
16.1	COST OF MATERIAL / EQUIPMENT (RS.LAKHS) (AS PER INSURANCE CLAIM LODGED)	NIL
16.2	SHUTDOWN OF THE PLANT/ OUTAGE OF FACILITY	NO
16.3	IF YES DURETION	NO
17.0	**INDIRECT LOSS THROUGH PUT / POTENTIAL PRODUCTION (Mts.)**	NIL
18.0	**RESPONSE FORM MUTUAL AID MEMBERS**	NIL
19.0	**RECOMMENDATIONS PREVENT RECURRENCE**	NIL
20.0	**REPORT OF INVESTIGATION COMMITTEE (INTERNAL / EXTERNAL)**	NO
21.0	**REMARKS / ANY OTHER INFORMATION**	NIL

ACCIDENT FREE MAN HOURS FOR: December: **2001 : 12908 hrs.**

(G.S. Singh)
SMNM

vi	Mechanical Foam Generator					
	MFG-5	Nil	--	--	--	
	MFG-10	Nil	--	2	OK	
	MGF-20	Nil	--	--	--	
vii	Foam Nozzle					
viii	AFFF Compound					
	Stock	4.500	U/T	4380	U/T	
	Expiry Date	2015	--	2015		
ix	Fire Siren					
	Electric Siren (3 km range)	1	OK	1	OK	
	Hand Operated Siren	1	OK	1	OK	
	DC Siren	1	OK	--	--	
x	Sand Buckets/Sand Scoops	15	OK	15	OK	
xi	Water curtain nozzle	3	OK	2	Ok	
xii	Hoses	18	OK	10	OK	
xiii	Co_2 cartridges for DCP Exti.	25	OK	10	OK	
xiv	Dry Chemical Powder	70 kg	OK	50	OK	
C	**SAFETY EQUIPMENTS**					
i	Helmets	10	OK	10	OK	
ii	Hand Gloves					
	Leather	3	OK	--	--	
	Rubber	1	OK	2	OK	
	Asbestos	5	OK	2	OK	
	PVC/Rubber(chemicals)	16	OK	--	--	
iii	Safety Belts	2	OK	2	OK	
iv	Ear Muffs/Plug	3	OK	4	OK	
v	Asbestos Suit	Nil	--	1	--	
vi	Aluminum Fire Proximity / Fire Entry Suit	2	OK	1	OK	
vii	Asbestos Blankets	2	OK	2	OK	
viii	Safety Torch	3	OK	4	OK	
ix	Breathing Apparatus Set	3	OK	3	OK	
x	First Aid Box Anti snake Serum	2	OK	1	OK	
xi	Resuscitator	1	OK	2	OK	
xii	Water Jet Blankets	1	OK	1	OK	
xiii	Stretcher	1	OK	1	OK	
xiv	Explosive meter	1	OK	1	OK	
xv	Red / Green Flag for Drill	1 set	OK	--	--	
xvi	Wind Shocks	1	OK	1	OK	
Xvii	Safety Goggles (for Grinder)	8	OK			
xviii	Spare Breathing Apparatus Cylinder	1	OK	1	OK	
D	**MOBILE FIRE FIGHTING EQUIPMENTS**					
i	Trolley mounted 200 / 250kg capacity DCP Extinguisher	Nil	--	2	OK	150 Kg

ii	Trailer mounted foam cum Water Monitor	Nil	--			
	1200 / 1500 LPM	Nil	--	--	--	
	2580 LPM	Nil	--	--	--	
	3840 LPM	Nil	--	--	--	
iii	Foam Trolley	Nil	--	1	Ok	
iv	Foam Tender with accessories	Nil	--	--	--	
E	**FIXED FIRE FIGHTING FACILITIES**	GR				
i	Fire Fighting Pump					
	Jockey Pump			--	--	
	Engine Drive Pump			1	OK	
	Motor Driven Pump			1	OK	
ii	No of Fire water pond / Tank			1	OK	
	Capacity			60kls	OK	
iii	Fire Water mains					
	Size	3.5inch	OK	8inch	OK	
iv	Fire Hydrant Valves	5	OK	5	OK	
v	Fixed Form Cum Water Monitor	1	OK	2	OK	
vi	Automatic Heat / Smoke Detector (In Control Building)	Nil	--	6	Ok	
vii	Automatic Foam Flooding system with Fire Detection System of M/L Pump Shed	Nil	--	--	--	
viii	Fixed Co_2 System of M/L Pumps (Engine Driven)	Nil	--	--	--	
ix	Automatic Co_2 total flooding system of Control Building	Nil	--	--	--	
x	Automatic Halon 1211 (BCF)/ Co_2 system of Repeater Station	Nil	--	--	--	
xi	Water Spray system					
	Control Building	1	OK	1	OK	
	Store Tanks	1	OK	1	OK	
xii	Automatic Halon system of storage tank	Nil	--	--	--	
F	MOCK FIRE DRILL DATE	10-12-2001		12-12-2001		

(LAKHMI CHAND)
F&S Coordinator

Annexure 24: Status of different audits and gap analysis

STATUS ON IMPLEMENTATION OF OISD AND KOT-FIRE RECOMMENDATIONS

(STATUS AS ON JUNE 2002)

1) **OISD Recommendations (Checklist Points) :-**

All points have been implemented.

2) **OISD Major Recommendations :-**

All points liquidated.

3) **KOT-FIRE Recommendations :-**

All points pertaining to KAPL have been implemented.

4) **EXTERNAL ELECTRICAL SAFETY AUDIT**
(By M/s. Electromech, Mumbai)

All 37 recommendations implemented.

[c:\TSMR\OISD-KOT FIRE & FEDO (msword)]

STATUS OF IMPLEMENTATION OF RECOMMENDATIONS OF M/S. FEDO FOR KAPL

(Status as on **JUNE 2002**)

(A) KAPL : KOYALI

Recommended Points : **18 nos**

Work completed in all respects alongwith KNPL Construction works.

(B) KAPL SABARMATI

Recommended Points **16 nos**

Work completed in all respects & site commissioned.

[c:\TSMR\OISD-KOT FIRE & FEDO (msword)]

STATUS ON RECOMMENDATIONS OF WRPL HOUSEKEEPING COMMITTEE - KAPL

Year 2001

(Status as on JUNE 2002)

STATION : KAPL KOYALI　　　　DATE OF AUDIT : 04.04.2002

SN	OBSERVATIONS / RECOMMENDATIONS	STATUS
1	Earthing improvement	
	1. Double earthing of BP-3 motor to be ensured.	Double earthing is already available.
	2. GI strip to be used for earthing instead of running 8 gauge GI wires / ropes underground.	All new equipment have been provided with GI strip earthing. Being taken up for old equipment.
	3. All bolts / nuts of earthing pits to be replaced with galvanised bolts / nuts.	Work in progress.
2	Complete list of Mainline Emergency maintenance tools and tackles has not been displayed in the store room. Complete list to be displayed.	List displayed.
3	Few UG piping not coat and wrapped (minimum) 6" above the ground level. To be coat and wrapped.	Tender evaluation in progress for lining up agency.
4	2 nos. of encroachment at Ch : 66.800 & 68.800 kms are not removed Efforts to be made for their removal	It was removed before auditing and reflected in PMC report dtd. 06/04/02
5	Fire Clock is not available. Requirement may be studied	Being small area, visible from all sides and within GR battery area, hence Fire Clock is not required.
6	HF Set licence renewal correspondence is not available. To be made available	Correspondence available
	Few Hot and Cold Work permits not extended from Shift to Shift & entries not made in Log-book. To be extended from Shift to Shift & their entries are to be made in the Log book.	Being done, however the same shall be ensured.
	MP-1 motor DE RTD cable glanding not OK	Rectified.

	MP-3 motor heater cable glanding not OK. To be rectified.	Rectified.
9	Operation data log book and other operation registers are not serial numbered. To be serial numbered.	Being done.
10	Smoke / Heat detector system has not been provided in pump station / MCC room / control room & cable trench. To be provided.	Being installed alongwith KNPL – auto fire detection and alarm system
11	Instructions written in Communication register are not being signed by all Shift Officers. To be signed by all shift officers.	Register shall be signed by shift officers.

STATUS ON RECOMMENDATIONS OF WRPL HOUSEKEEPING COMMITTEE - KAPL

Year 2001

(Status as on June 2002)

STATION : KAPL Sabarmati DATE OF AUDIT : 02.04.2002

SN	OBSERVATIONS	RECOMMENDATIONS	STATUS
1	Earthing improvement.	1. Double erathing of all JBs, motors, push buttons, lightening arrestors FLTs to be ensured. 2. GI Strip to be used for earthing instead of running 8 gauge wires / ropes underground. 3. Earthing of all steel structures to be ensured. 4. All bolts / nuts of earthing pits to be replaced by Galvanised bolt / nuts.	Renovation of Earthing system completed. COMPLIED
2	Shortfall in ML Emergency maintenance tools and tackles to be made up.	To be procured /stacked at one place. The list of the same to be displayed in the store and periodical verification to be done.	Necessary eqpt. is being identified and procurement action shall be taken accordingly.
3	Earthing pit number, resistance value, the date of measurement and the due date has not been indicated in the earth	To be indicated	Eathing pit numbering done. Register being maintained for values & date of measurements.
4	Explosive meter calibration certificate is not available	To be made available	Calibration certificate made available
5	Fire Hydrant grid hydrotesting not done.	To be done	Grid testing done in 2000 during commissioning
6	Fire Hose hydrotesting has been carried out in 2001	To be tested as per OISD-117 (twice in a year)	Being taken up.
7	DMP to be displayed in Hindi	To be provided	Being done.
8	Library book list has not been updated	To be updated	Done. COMPLIED
9	Neoprene rubber sheet is not available for Mainline / manifold / over ground F/F lines	To be provided	Being provided as per requirement.

STATUS ON RECOMMENDATIONS OF TECHNICAL CUM SAFETY AUDIT & ENVIRONMENTAL AUDIT
YEAR 2001

(STATUS AS ON JUNE 2002)

NAME OF STATION : KAPL KOYALI , AUDIT DATE : 10.12.2001

SR NO.	RECOMMENDATIONS	STATUS
1.	P&I diagram to be made available and displayed	Complied.
2.	Some indicating lights are not glowing in the MCC room.	Complied.
3.	Cable termination in Explosion Proof Junction box for Turbine Meter and Temperature probe on MP-3 is not properly glanded.	Complied.
4.	Station high discharge pressure set point for tripping is 83 kg / sq.cm, however tripping did not happen even at 84 kg / sq.cm. Re-calibration of tripping pressure switch to be done.	Complied.
5.	In Earthpit No:7 A strip was found disconnected from the electrode.	Complied.
6.	One. No. exhaust fan in store shed and one no. in MCC Room is not working.	Complied.
7.	The CO2 discharge hoses of Extinguisher No : 47 and 48 found damaged.	Hoses replaced – Complied. However old one worked satisfactorily during mock drill.
8.	There is an acute scarcity of space inside the pump station, the Committee feels that the intermediate wall between SMPL and KAPL stations should be demolished.	It will be reviewed with other incoming projects.
9.	There is no assembly point inside the boundary wall of pipeline station for assembly in case of emergency inside the station.	Being a small location and of less area, it is not applicable. However outside KAPL assembly point has been earmarked by GR.
10.	Air and Water Consent from SPCB is taken by Gujarat Refinery, one copy of the same should be available at Pipeline station also.	Copies of Air & Water consent made available. COMPLIED.

STATUS ON RECOMMENDATIONS OF TECHNICAL CUM SAFETY AUDIT & ENVIRONMENTAL AUDIT
YEAR 2001

(STATUS AS ON JUNE 2002)

NAME OF STATION : KAPL, SABARMATI AUDIT DATE 12/12/2001

SR. NO	RECOMMENDATION	STATUS
1.	Adequate double Earthing with GI strip for Fire Fighting Motor is not done which is to be provided.	Provided. COMPLIED.
2.	Earth Pits are to be numbered and Earth Grid layout to be displayed in MCC Room.	Renovation of Earth Pits completed. Complied.
3.	Platform is required for operating the fixed Fire Monitor.	Done. Complied.
4.	Copper jumpers are to be provided in flanged joints.	Main Station piping 6" dia. joints already provided with Copper jumpers. Balance in progress.
5.	TRVs in delivery manifold outlet is positioned only and not commissioned.	TRVs have been provided upstream on Marketing side and hence not required on PL end.
6.	Cleaning of fire pond is required, date of cleaning and next due date for cleaning to be displayed.	Done from time to time. COMPLIED.

STATUS ON COMPLIANCE OF VARIOUS FIRE & SAFETY RELATED ACTIVITIES (KAPL)

(Status as on JUNE 2002)

Compliance Status Report on Fire & Safety related activities are given below :

1) Regular Fire / Disaster plan is displayed and all equipment are in working condition. Filled-in format about F & S information is enclosed.

2) Guidelines / statutory obligations / procedures / practices of various bodies are being followed and meeting the requirements.

3) Scheduled maintenance and inspection of all station equipment are being done as per plan along with mainline equipment and mainline piping.

4) Recommendations of External Safety Audit are under implementation & status are as follow:

OISD	- MAJOR RECOMMENDATIONS	- All Points Implemented
	- CHECKLIST POINTS	- - do -

5) Training Programme in Fire & Safety is being conducted at Gujarat Refinery where all employees are participating turn wise. Details are as follows:

YEAR	NO.OF TRG. PROGRAMMES CONDUCTED	NO.OF EMPLOYEES EXPOSED
1997	07	16
1998	02	13
1999	05	22
JAN'2000	01	04
FEB'2000	01	03
MARCH'2000	First Aid	10 Koy, 2-SBT
APRIL' 2000	NIL	NIL
TO		
FEB 2001	NIL	NIL
MAR' 2001	01	01
APRIL' 2001	NIL	01
MAY' 2001	NIL	NIL
JUNE' 2001	01	03
JULY' 2001	NIL	NIL
AUG 2001	NIL	NIL
SEPT. 2001	01 (First Aid Trg. By GSC at SBT)	14
OCT. 2001	NIL	NIL
TO		
MAY 2002	NIL	NIL
JUNE 2002	NIL	NIL

LIST OF ACTIVITIES CARRIED OUT TO ENSURE WORKING CONDITION OF ALL THE EQUIPMENTS FOR FIRE FIGHTING PREVENTION

1. FIRE MOCK DRILL

NORM	COMPLIANCE	MAJOR ACTIVITIES	RECTIFICATION OF DEFICIENCIES OBSERVED
Monthly	17-04-2002	Major Mock Drill carried out involving GR F&S, CISF etc for major fire in Pump Station. Safety Awareness rating of employees also carried out	

2. OFFSITE DISASTER DRILL

NORM	COMPLIANCE	MAJOR ACTIVITIES	RECTIFICATION OF DEFICIENCIES OBSERVED
Yrly	Yes (Done on 30-05-2000)	Participation of local Panchayat & local Police & ONGC & Ahmedabad Fire Station.	Nil

3. CHECKING/TESTING WORKING CONDITION OF FIRE FIGHTING EQUIPMENT & COMMUNICATION FACILITY:

EQUIPMENT/ FACILITIES	NORMS FOR CHECKING TESTING	COMPLIANCE	RECTIFICATION OF DEFICENCIES OBSERVED
Fire Water pump (SBT)	Daily	Yes	NIL
Fire Tender	N.A	N.A.	N.A.
Communication System (HF)	Daily	Yes	NIL
(UHF)	do	do	Extension of SMPL UHF system- Availability = 80%
Fire Extinguishers	Monthly	Yes	Nil
Fire Water Network & Hydrants/ Monitor	Monthly	Yes	Coverage of LONDON & Universal monitor for SR Tank found satisfactory during Normal wind.

Gap Analysis

Unit : KAPL
Station : KOYALI
Status of Implementation of Recommendations as on June 2002

Sr. No.	Recommendation/ Observations	Action Plan	Target	Status	Contingency plan
01.	Water line size should be modified to 8"	To be updated to 8" during KNPL work	KNPL sch March 2002	Completed under KNPL construction. COMPLIED.	In absence of it, any Exigency will be taken care by GR backup facilities available.
02.	2 addl hydrants reqd.	During KNPL work	KNPL sch. March 2002	COMPLIED	- do -
03.	One addl. Fixed water cum foam monitor reqd.	With KNPL work	KNPL sch. March 2002	COMPLIED	- do -
04.	Water main to be looped	With KNPL work	KNPL sch. March 2002	COMPLIED	- do -
05.	Auto fire detection, foam flooding in pump shed	To be installed in existing & KNPL pump shed	KNPL Sch. March 2002	This has been included in the KNPL Project for which work is in progress.	Foam flooding dropped by HOPJ being Motor operated vide IOM PL/PJ/M/KNPL/6.0 dated 2.11.99. Any eventuality for auto fire detection will be taken care by GR back up facility.

FIRE PROTECTION SYSTEM

Storage tank sprinklers (SBT)	Monthly	Yes	Working at SBT
LPG Area water Sprinkler	N.A.	N.A.	N.A.
Process Unit Sprinkler	N.A.	N.A.	N.A.
Smoke & Heat Detector	Monthly	Yes	Working at SBT

5. Qty. of AFFF - AT SABARMATI - 4.28 KL

AT KOYALI - 5.3 KL

6 Working of Fire & Safety Equipment - All First Aid Fire & Safety equipments are in working condition.

7. Quantity of AFFF with Mutual Aid Partners - a) Mktg. Division at SBT - 2.4 KL
b) GR at Koyali - 140 KL

[C:\TSMR\FF (msword)]

06.	AFFF stock to be maintained 2.5 kl.		-	5.3 KL Stock is being maintained.	-
07.	2 nos. walkie-talkie sets reqd.	To be procured under AF	June'2000	Procured under AF Scheme. COMPLIED.	Material recd. COMPLIED
08.	Work permit to be renewed every shift for continuous work.	-	Complied	Implemented COMPLIED.	COMPLIED.

Gap Analysis

Unit : KAPL
Station : SABARMATI
Status of Implementation of Recommendations as on June 2002.

Sr. No.	Recommendations/ Observations	Action Plan	Target	Status
1.	New F/F pump procured to be installed	Completed	31.12.99	Completed
2.	Water main size to be modified to 8"	Completed	31.12.99	Completed
3.	One addl hydrant reqd.	Completed	31.12.99	Completed
4.	One addl fixed water cum foam monitor reqd.	Completed	31.12.99	Completed
5.	An integrated F/F system with marketing reqd. to be documented		31.12.99	Mutual Aid with Mkt. exists. Fire water line from Mktg. System extended to PL
6.	Foam pourer to SR tank needs to be rectified.	-	Complied	Implemented.
7.	Nozzle with branch pipe defective. to be rectified	-	Complied	Implemented.
8.	AFFF stock to be maintained 3.5kl		-	4.28 KL stock is being maintained
9.	Work permit to be renewed every shift for continuous work.	-	Complied	Implemented
10.	Regular drill to be conducted. one F&S Officer to training.	-	Complied	Implemented
11.	Siren code to be followed.	-	Complied	Implemented

Annexure 25: Copy of Explosive licence and Public Liability Insurance

(प्रथम अनुसूची का अनुच्छेद 6 देखिए)
(*See* Article 6 of the First Schedule)

पेट्रोलियम के आयात और अधिष्ठापन में भण्डारकरण के लिए अनुज्ञप्ति
LICENCE TO IMPORT AND STORE PETROLEUM IN AN INSTALLATION

अनुज्ञप्ति सं०
Licence No. A-12(25)1460/63/PKO-356

फीस
Fee Rs. 150/-

एतद्द्वारा श्री ___ को केवल उसमें इसके पश्चात् विनिर्दिष्ट वर्ग के पेट्रोलियम को नीचे वर्णित मात्रा में आयात करने के लिए और उसका, नीचे वर्णित और अनुमोदित नक्शा सं० ___ तारीख ___ जो कि इससे उपबद्ध है, में दिखाए गए स्थान पर भण्डारकरण के लिए, पेट्रोलियम अधिनियम, 1934 के उपबन्धों और उसके अधीन बनाए गए नियमों तथा इस अनुज्ञप्ति की अन्य शर्तों पर, अनुज्ञप्ति मंजूर की जाती है।

Licence is hereby granted to M/s. Indian Oil Corpn. Ltd., [illegible] * valid only for the importation of [illegible] KL Petroleum of the classes and in quantities as herein specified and storage thereof in the place described below and shown on the approved plan No A-12(25)[illegible] dated 2-2-1986 attached hereto subject to the provisions of the Petroleum Act, 1934 and the rules made thereunder and to the further conditions of this licence.

* Products Pipeline, P.O. [illegible], Dist. [illegible]

for C.C.E. Nagpur.

यह अनुज्ञप्ति 19 ___ के दिसम्बर के इकतीसवें दिन तक प्रवृत्त रहेगी।
The licence shall remain in force till the 31st day of December 19[illegible]

पेट्रोलियम का वर्णन Description of petroleum	अनुज्ञप्त मात्रा किलो लिटरों में Quantity licensed in kilolitres
क वर्ग का विपुल पेट्रोलियम Petroleum Class A, in bulk	
क वर्ग का अविपुल पेट्रोलियम Petroleum Class A, otherwise than in bulk	
ख वर्ग का विपुल पेट्रोलियम Petroleum Class B, in bulk	----
ख वर्ग का अविपुल पेट्रोलियम Petroleum Class B, otherwise than in bulk	
ग वर्ग का विपुल पेट्रोलियम Petroleum Class C, in bulk	
ग वर्ग का अविपुल पेट्रोलियम Petroleum Class C, otherwise than in bulk	
योग Total	[illegible]

तारीख
The 22-2-1986

मुख्य विस्फोटक नियंत्रक
for Chief Controller of Explosives.

अनुज्ञप्त परिसर का विवरण
DESCRIPTION OF THE LICENSED PREMISES

अनुज्ञप्त परिसर, जिसकी स्थिति, नक्शे और अन्य [illegible] दिये गये हैं,
स्थान पर अवस्थित है तथा उसमें निम्नलिखित सम्मिलित है

The licensed premises, the layout, boundaries and other paticulars of which are shown in the attached approved plan are situated at Koyali, Dist. Baroda and consist of one underground petroleum class 'B' storage tank together with connected facilities.

नवीकरण के पृष्ठांकन के लिए स्थान
SPACE FOR ENDORSEMENT OF RENEWALS

पेट्रोलियम अधिनियम, 1934 के उपबन्धों या उनके अधीन बनाए गए नियमों या इस अनुज्ञप्ति की शर्तों का उल्लंघन न होने की दशा में यह अनुज्ञप्ति फीस में बिना किसी छूट के तीन वर्ष तक नवीकृत की जा सकेगी। This licence shall be renewable without any concession in fee for three years in the absence of contravention of any provision of the Petroleum Act, 1934 or of the rules framed thereunder or of any of the conditions of this licence.	नवीकरण की तारीख Date of renewal	अनुज्ञप्ति की समाप्ति की तारीख Date of expiry	अनुज्ञापन प्राधिकारी के हस्ताक्षर और कार्यालय स्टाम्प Signature and office stamp of the licensing authority

Renewed upto 31-12-2001.
Dy. Chief Controller of Explosives, BARODA.

Renewed upto 31-12-2004.
Dy. Chief Controller of Explosives, BARODA.

20-1-1997 31-12-1998 Dy. C. C. E. West Circle.

Renewed upto 31-12-1999 [illegible] C.C.E.

31-12-19[illegible] Dy. C.C.E.

31-12-1978 [illegible] C.C.E.

यदि निरीक्षण के समय अनुज्ञप्त परिसर इससे उपाबद्ध विवरणी और शर्तों के अनुरूप नहीं पाए जाते हैं और जिन नियमों और शर्तों के अधीन यह अनुज्ञप्ति मंजूर की गई है, में से किसी का उल्लंघन होने की दशा में यह अनुज्ञप्ति रद्द की जा सकती है और अनुज्ञप्तिधारी प्रथम अपराध के लिए साधारण कारावास से, जो एक मास तक का हो सकता है या जुर्माने से, जो एक हजार रुपये तक का हो सकता है, या दोनों से, और प्रत्येक पश्चात्वर्ती अपराध के लिए साधारण कारावास से, जो तीन मास तक का हो सकता है या जुर्माने से, जो पांच हजार रुपये तक का हो सकता है या दोनों से, दण्डनीय भी होगा।

The licence is liable to be cancelled if the licensed premises when inspected are not found conforming to the description and conditions attached hereto and contravention of any of the rules and conditions under which this licence is granted and the holder of this licence is also punishable for the first offence with simple imprisonment which may extend to one month, or with fine which may extend to one thousand rupees, or with both and for every subsequent offence with simple imprisonment which may extend to three months, or with fine which may extend to five thousand rupees, or with both.

प्ररूप

FORM [illegible]

(प्रथम अनुसूची [illegible])

(See Article 6 [illegible])

836

068

पेट्रोलियम के आयात और अधिष्ठापन [illegible] लिए अनुज्ञप्ति

Licence to import and store petroleum in an installation.

अनुज्ञप्ति स.
Licence No. P. 12(25)322/G[illegible] AMD. 130

फीस 772 रु.
Fee Rs. 320/-

एतद्द्वारा श्री [illegible] को केवल इसमें इसके पश्चात् विनिर्दिष्ट वर्ग के पेट्रोलियम को [illegible] वर्णित मात्रा में आयात करने के लिए और उसका, नीचे वर्णित और अनुमोदित नक्शा स. ______ तारीख ______ जो कि इससे उपबद्ध है, में दिखाए गए स्थान [illegible] भंडारकरण के लिए, पेट्रोलियम अधिनियम, 1934 के उपबन्धों और उसके अधीन बनाए गए नियमों तथा इस अनुज्ञप्ति की अन्य शर्तों पर अनुज्ञप्ति मंजूर की जाती है।

Licence is hereby granted to M/s. Indian Oil Corporation Ltd., (Refineries P.O. Jawaharnagar, Distt. Baroda ... valid only for the importation of 160 KL of ... petroleum of the classes and in quantities as herein specified and storage thereof in the place described below and shown on the approved plan No. P. 12(25)322 dated ~~6-3-1972~~ 18/6/1973 attached hereto subject to the provisions of the Petroleum Act 1934 and the rules made thereunder and to the further conditions of this licence

fo/ C.C.E. Nagpur.

यह अनुज्ञप्ति 19____ के दिसम्बर के इकतीसवें दिन तक प्रवृत्त रहेगी।

The licence shall remain in force till the 31st bay of December 19..77.

पेट्रोलियम का वर्णन	अनुज्ञप्त मात्रा किलो लिटरों में
क वर्ग का विपुल पेट्रोलियम	
क वर्ग का अविपुल पेट्रोलियम	
ख वर्ग का विपुल पेट्रोलियम	
ख वर्ग का अविपुल पेट्रोलियम	
ग वर्ग का विपुल पेट्रोलियम	
ग वर्ग का अविपुल पेट्रोलियम	
योग	

I.O.C. Ltd. [illegible]
Diary No. 6.6
Date 3/6/73
[illegible]ajuva. (Baroda Dist.)

तारीख ______ 19__

मुख्य विस्फोटक नियंत्रक

Description of petroleum	Quantity licensed in kilolitres
Petroleum Class A in bulk	160
Petroleum Class A otherwise than in bulk	--
Petroleum Class B in bulk	--
Petroleum Class B otherwish than in bulk	--
Petroleum Class C in bulk	--
Petroleum Class C otherwise than in bulk	--
TOTAL	160

The ______ 19__

Chief Controller of Explosives.

अनुज्ञप्त परिसरों का विवरण

DESCRIPTION OF THE LICENSED PREMISES

अनुज्ञप्त परिसर, जिनकी स्थिति, चौहद्दी और अन्य विशिष्टियां संलग्न अनुमोदित नक्शों में दिखाई गई है, ______ स्थान पर अवस्थित है तथा उसमें निम्नलिखित सम्मिलित है :-

The licensed premises, the layout, boundaries and other particulars of which are shown in the attached approved plan, are situated at Sabarmati (Terminal) and consist of — one aboveground Tank together with other facilities.

नवीकरण के पृष्ठांकन के लिए रिक्त स्थान

पेट्रोलियम अधिनियम, 1934 के उपबन्धों या उनके अधीन बनाए गए नियमों या इस अनुज्ञप्ति की शर्तों का उल्लंघन न होने की दशा में बिना किसी छूट के तीन वर्ष तक नवीकृत की जा सकेगी।	नवीकरण की तारीख	अनुज्ञप्ति की समाप्ति की तारीख	अनुज्ञापन प्राधिकारी के हस्ताक्षर और कार्यालय स्टाम्प

~~29/10/1984 3-12-1985 Dy. C. C. E. West Circle~~

यदि निरीक्षण के समय अनुज्ञप्त परिसर इससे उपबद्ध विवरणी और शर्तों के अनुरूप नहीं पाए जाते है और जिन नियमों और शर्तों के अधीन यह अनुज्ञप्ति मंजूर की गई है, में से किसी का उल्लघन होने की दशा में यह अनुज्ञप्ति मंजूर की जा सकती है और अनुज्ञप्तिधारी प्रथम अपराध के लिए साधारण कारावास से, जो एक मास तक का हो सकता है या जुर्माने से, जो एक हजार रुपये तक का हो सकता है, या दोनों से, और प्रत्येक पश्चात्वर्ती अपराध के लिए साधारण कारावास से, जो तीन मास तक का हो सकता है या जुर्माने से, जो पाच हजार रुपए तक का हो सकता है या दोनों से, दण्डनीय भी होगा।

24/10/1983 31-12-1987 Dy. C. C. (E) West Circle

Renewed upto 31-12-1985

C. The licence is liable to be cancelled if the licensed premises when inspected are not found conforming to the description and conditions attached hereto and contravention of any of the rules and conditions under which this license is grant.d and the holder of this licence is also pnnishable for the first offence with simple imprisonment which may extened to one month, or with fine which may extened to one thousand rupees, or with both and for every subsequent offeence with simple imprisonmant which may extend to three months, or with fine which may extend to five thousand rupees. or with both

1. अनुज्ञप्त परिसरों का उपयोग मुख्य नियंत्रक की लिखित अनुज्ञा के बिना पेट्रोलियम के भंडारकरण और वितरण तथा उनसे प्रत्यक्षतः सम्बन्धित प्रयोजनों से भिन्न किसी प्रयोजन के लिए नहीं किया जाएगा :

1. The licensed premises shall not without permission in wri ing form the Chief Controller be used for any purpose other than the storage and distribution of petroleum and purposec directly connecten therewith.

2. पैट्रोलियम भंडारकरण टैंकों और भंडारकरण तथा भराई शेडों में या इस प्रयोजन के लिए विनिर्दिष्ट अधिष्ठापन के भीतर ~~अनुमोदित स्थानों~~ में ही, जो इससे संलग्न नक्शे में दिखाए गए हैं, रखा जाएगा।

2. Petro cum shall be kept only in the storage tankn and storage and filling sheds or other approved places within the installation specified for the purpose on the plan attached hereto.

3. (i) टैंक भलीभांति डिजाइन की गई नीवों के ऊपर आधारित होंगे और या तो भूमि के नीचे दबाकर रखे जायेंगे या खुले में लगाए जायेंगे तथा चतुर्दिक दीवार या तटबंध से घिरे होंगे, जो अधिक से अधिक दो मीटर ऊंचे और मिट्टी, स्टील, कंकरीट या ठोस चिनाई के गए होंगे ? ताकि वे द्रव स्थैतिक भार को पूरी तरह सहन करने में समर्थ हों। एक मीटर से ऊंची मिट्टी की दीवार का शिखर पलैट सेक्शन 0.6 मीटर से कम नहीं होना चाहिए। परन्तु दो मीटर से अधिक ऊंची दीवार या तटबन्ध की अनुज्ञापन अनुज्ञापन प्राधिकारी द्वारा वहां दी जा सकती है जहां ऐसी विशेष परिस्थितियां है जिनमें उसकी राय में ऐसी वृद्धि की अनुज्ञा दी जानी चाहिए।

upto 31-12-2001

3. (i) The tank or tanks shall be supported on will designed foundations and shall be eithe buried underground or installed in the open and surrounded by wall or embankment not more than 2 metes high and made of earth, steel, concrete or solid masonry capable of withstanding fully hydrostatic laod. Earth wali of over 1 m high shall have not less then 0.6 m wide flta section on top:

Controller of Explosives, BARODA.

Provided that a wall or embankment higher then 2m may be allowed by the licensing authority where there are special circumstances which, in his opinion, warrant such increase

(ii) अहाते के भीतर की भूमि अहाते की बाहर की भूमि से निम्नतर तल वाली होनी चाहिए और उसका ढलान इस प्रकार से बनाया जाएगा कि वह टैंक से नालों या कुंड की ओर आधा प्रतिशत से कम न हो।

(ii) The ground wihin the enclosure shall not be lower than the leve of the ground outride the enclosure and shall be fintshed to from a slope of not less than half a per cent from the tank towards the drain or sump:

Renewed upto 31-12-2004

परन्तु इस खण्ड की कोई बात उस अहाते की दशा में लागू नहीं होगी जो उचित ढलान वाले भूमिगत जल निकासी प्रणाली से होकर एक पर्याप्त क्षमता वाले सक्षम तेल अपरोधक से जुड़ा हुआ है।

✓ Provided that nothing in this clause shall apply in the case of an enclosure which is connected to an efficient oil interceptor of ample capacity through an underground drainage systen having proper slope.

Dy. Chief Controller of Explosives, BARODA.

(iii) अहाते में निकासी का नियंत्रण एक वाल्व से किया जाएगा जो आग लगने की दशा में सुगम्य होना चाहिए और अहाते के बाहर से ही सचालित किए जाने योग्य होना चाहिए। अहाते में से सतही जल निकास नालियां एक सक्षम तेल अपरोधक से होकर गुजरनी चाहिएं।

(iii) The drainage from the enclosure shall be controlled by a valve

DUPLICATE & RENEW
PREVIOUS LICENCE NO.....

[રૂપે. એફ. આઈ. ૧૬૭.

પ્રો. આ-(કંપની)-૨૧૪-૩૫૦ ૨૭.-૯ ૮૪.
પ્રો. આર-૨૯૩૯ કા. અને ગં. વિ. બો
૧-૫-૫૭ ના
નં. ૪૪/૪૮-૨૦૨૭૬-સી.

ફોર્મ નં. ૪ -
(નિયમ ૫ હેઠળ ઠરાવેલ)

કારખાનું ચલાવવા માટે નોંધણી અને લાઈસન્સ

બરોડા

લાઈસન્સ **No 073590**

સામું અપાયેલું નોંધણી નંબર ૭૦(૭૦૭)૨/A

આથી ઇન્ડીયન ઓઈલ કોર્પો.લી. (પાઈપ લાઈન ડીવી.) ને ૧૯૪૮ના કારખાનાના અધિનિયમ અને તે હેઠળ ઘડવામાં આવેલા નિયમોને આધીન રહીને ફક્ત નીચે જણાવેલ મકાન વિસ્તારનો વર્ષ દરમિયાન કોઈપણ એક દિવસે ૧૦૦ થી ~~ઓછું~~/વધુ નહીં વ્યકિતઓને કામે રાખતા અને ૫૦૦૦ હોર્સ પાવરથી ~~ઓછું~~/વધુ નહીં સ્થાપિત વીજળી શકિત ધરાવતા કારખાના તરીકે ઉપયોગ કરવાનું કાયદેસર લાઈસન્સ આપવામાં આવે છે.

આ લાઈસન્સ ૩૧મી ડીસેમ્બર ૧૯૯૨ સુધી ચાલુ રહેશે.

ચૂકવેલ ફી રૂ. ૬૪૫૫/-
લેણી ફી રૂ. ૬૪૦૦/-
વધારાની ફી રૂ. ૫૫/-

તારીખ ૨૩-૩-૧૯૯૨.

કારખાનાના મુખ્ય નિરીક્ષક
ગુજરાત રાજ્ય

લાઈસન્સ અપાયેલ મકાન વિસ્તારનું વર્ણન

તારીખ ૧૬/૬/૭૦ ના નકશા નં. ૨૯૫/૭૦/૨૨૪૨૩/ઈ/૫ માં દર્શાવેલ લાઈસન્સ અપાયેલ મકાન પો.ઓ. જવાહરનગર - ૩૯૧૩૨૦ ખાતે આવેલ છે અને તેમાં જિ. વડોદરા ઇન્ડીયન ઓઈલ કોર્પો.લી (પાઈપલાઈન ડીવી.)(કોયલી-અમદાવાદ પાઈપ લાઈન.) છે.

નવી-કરણ

નવીકરણની તારીખ	કામદારોની સંખ્યા માટે	હોર્સ પાવર માટે	લેણી ફી	વધુ ચૂકવણી	પુરૂ થયાની તારીખ ૩૧મી ડીસેમ્બર	લાઈસન્સ આપનાર અધિકારીની સહી
૩/૧૨/૯૨	૬૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૩	
૧૦/૨/૯૪	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૧૯૯૪	
	૨૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૫	
[illegible]	[illegible] થી વધુ નહીં	[illegible] થી વધુ નહીં	૬૪૦૦ન-પ-ફી	૬૪૫૫/-	૧૯૯૬	
	થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં		૫૫/-	૧૯૯૭	
[illegible]	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૧૯૯૮	
[illegible]	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૯	
	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૨૦૦૦	
	[illegible]	થી વધુ નહીં	૬૪૦૦/-			

DUPLICATE & RENEWED
PREVIOUS LICENCE NO. ૫૯૨૨

ફોર્મ નં. ૪

(નિયમ ૫ હેઠળ ઠરાવેલ)
કારખાનું ચલાવવા માટે નોંધણી
અને લાઈસન્સ

બરોડા

લાઈસન્સ No 073590

સામું આંકડિયું નોંધણી નંબર ૭૦(૭૦૭)૨૧૪

આથી ઈન્ડીયન ઓઈલ કોર્પો.લી.(પાઈપ લાઈન ડીવી.) ને ૧૯૪૮ના કારખાનાનાં અધિનિયમ અને તે હેઠળ ઘડવામાં આવેલા નિયમોને આધીન રહીને ફક્ત નીચે જણાવેલ મકાન વિસ્તારનો વર્ષ દરમિયાન કોઈપણ એક દિવસે ૧૦૦ થી ~~વધુ~~/વધુ નહીં વ્યકિતઓને કામે રાખતા અને ૫૦૦૦ હોર્સ પાવરથી ~~વધુ~~/વધુ નહીં સ્થાપિત વીજળી શકિત ધરાવતા કારખાના તરીકે ઉપયોગ કરવાનું કાયદેસર લાઈસન્સ આપવામાં આવે છે.

આ લાઈસન્સ ૩૧મી ડીસેમ્બર ૧૯૯૨ સુધી ચાલુ રહેશે.

ચૂકવેલ ફી રૂ. ૬૪૫૫/-
લેણી ફી રૂ. ૬૪૦૦/-
વધારાની ફી રૂ. ૫૫/-

તારીખ ૨૩-૩-૧૯૯૨.

કારખાનાના મુખ્ય નિરીક્ષક
ગુજરાત રાજ્ય

લાઈસન્સ અપાયેલ મકાન વિસ્તારનું વર્ણન

તારીખ ૧૬/૬/૭૦ ના નકશા નં. ૨૯૫/૭૦/૨૨૭૨૩/ઈ.૫ માં દર્શાવેલ લાઈસન્સ અપાયેલ પો.ઓ. જ્વાહરનગર - ૩૯૧૩૨૦ જિ. વડોદરા ખાતે આવેલ છે અને તેમાં ઈન્ડીયન ઓઈલ કોર્પો.લી (પાઈપલાઈન ડીવી.)(કોયલી-અમદાવાદ પાઈપ લાઈન.) છે

નવી-કરણ

નવી કરણની તારીખ	કામદારોની સંખ્યા માટે	હોર્સ પાવર માટે	લેણી ફી	વધુ ચૂકવણી	પુરૂ થયાની તારીખ ૩૧મી ડીસેમ્બર	લાઈસન્સ આપનાર અધિકારીની સહી
૩/૧૨/૯૨	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૩	
૧૦/૨/૯૪	~~૧૦૦~~ ૨૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૧૯૯૪	
~~[illegible]~~	~~[illegible]~~ થી વધુ નહીં	૫૦૦૦ ~~[illegible]~~ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૫	
૧૩/૨/૯૬	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-(એ-ફી)	૬૪૫૫/-	૧૯૯૬	
	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૭	
૬/૧૨/૯૭	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૧૯૯૮	
"	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૧૯૯૯	
૮/૨/૨૦૦૦	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૬૪૫૫/-	૨૦૦૦	
"	૧૦૦ થી વધુ નહીં	૫૦૦૦ થી વધુ નહીં	૬૪૦૦/-	૫૫/-	૨૦૦૧	
૨૦-૪-૨૦૦૧	૨૦૦ —״—	૫૦૦૦ —״—	૮૦૦૦/- લેણી	૫૫/-	૨૦૦૨	
૧૩.૩.૨.૦૨	૨૦૦ —״—	૫૦૦૦ —״—	૨૨૮૫૦/ ફ.ફી.	૫૫/	૨૦૦૩	

13 APR 2002
RECEIVED

INDIAN OIL CORPORATION LIMITED
(PIPELINES DIVISION)
NOIDA

INTER-OFFICE MEMO

FROM	ACO	**TO**	CFM	WR
	PL HO NOIDA		DFM	HBCPL
			DFM	KAPL
REF	PLF/42		SFM	KBPL
			DFM	BKPL
DATE	09/04/2002		SFM	ERPL
			FM	MJPL
			FM	HMRBPL
			DFM	GSPL

Sub: Copy of Public Liability Insurance Policy for the Year 2002-03.

We are enclosing herewith a copy of the insurance cover in terms of the Public Liability Act, 1991 taken from M/s United India Insurance Co. Ltd., Mumbai for the period from 1st April 2002 to 31st March 2003.

This for your information and record please.

P.K. Agrawal.

P K Agrawal

F
ENV (consult)

युनाइटेड इंडिया इन्श्योरेन्स कं. लि.
(भारतीय साधारण बीमा निगम की सहायक)
UNITED INDIA INSURANCE CO. LTD.
(Subsidiary of General Insurance Corporation of India)

मुंबई मंडल कार्यालय - 18
Mumbai Divisional Office No. 18
Cambatta Bldg., 3rd Flr., (Above Eros Cinema)
42, Maharshi Karve Road, MUMBAI - 400 020
Tel : 281 7970, 281 7968, 202 4644, 202 46
Fax : 202 4697

TO WHOMSOEVER IT MAY CONCERN

This is to certify that UNITED INDIA INSURANCE CO LTD D O 18, Mumbai has issued cover in terms of the Public Liability Act, 1991 and all amendments thereafter till date to the following party.

NAME : M/s. INDIAN OIL CORPORATION LTD.

BUSINESS : DEALERS IN PETROLEUM PRODUCTS

POLICY NO. : 021800/000/46/56/1001/02-03

PERIOD : 01.04.2002 TO 31.03.2003

LIMIT OF INDEMNITY : Rs. 5.00 CRORES ANY ONE EVENT
Rs.15.00 CRORES ANY ONE YEAR

PREMIUM : Rs. 26,26,902/-

ENVIRONMENT RELIEF FUND : Rs. 26,26,902/-

For and on behalf of
UNITED INDIA INSURANCE CO. LTD.

SR. DIVISIONAL MANAGER

Annexure 26: Environmental statement submitted to GPCB

KAPL/ENV/GEN

10th September 2001

To

MEMBER SECRETARY
GUJARAT POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN
SECTOR-10A
GANDHINAGAR – 382 043

Kind Attention : Mr.J.K.Vyas, Environment Engineer
Sub :- ENVIRONMENTAL STATEMENT FOR THE YEAR 2000-01

Dear Sir,

We are enclosing herewith the Environmental Statement for the year 2000-01 in FORM NO.-V with all the relevant details. This is for your information and record please.

Thanking you,

25/9/01

GUJARAT POLLUTION CONTROL BOARD
SECTOR-10 A,
GANDHINAGAR-382 043.

Yours faithfully,

(B.G.REDDY)
SR. TECHNICAL SERVICES MANAGER

CC: DGM KAPL – for information pls.
M(S&EP)-MR SMPL GAURIDAD – for information pls.
SOM SBT - for record pls.

FORM – V

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING 31ST MARCH 2001

PART-A

Name & Address of the Owner/Occupier of the Industry operation or process:-

M/S INDIAN OIL CORPORATION LIMITED (PIPELINES DIVISION)
KOYALI-AHMEDABAD PRODUCTS PIPELINE
P.O JAWAHARNAGAR
DIST : BARODA – 391 320
GUJARAT

(ii) Industry Category :-
Primary : (STC Code) - N.A.
Secondary : (STC Code) - N.A.

(iii) Production Capacity :- 1.1 Million Metric Ton per year
(Designed Capacity of the Pipeline)

(iv) Year of Establishment :- 1996

(v) Date of last environment statement submitted : 13.09.2000

PART-B

Water and Raw Material Consumption :-

1. Water Consumption cu.m / day :
Process - NIL
Cooling - NIL
Domestic - 1
Cleaning & Gardening etc. - 3

NAME OF PRODUCTS	PROCESS WATER CONSUMPTION PER UNIT OF PRODUCT OUTPUT	
	DURING THE YEAR 2000-01	DURING THE YEAR 2000-01
Sabarmati Terminal Station of KAPL, IOCL does not produce any products. It receives petroleum products from Koyali, KAPL through cross-country pipeline. The process does not require water except for cleaning etc. Hence the consumption of water for process is nil.		

2. Raw Material Consumption :

NAME OF RAW MATERIAL	PROCESS WATER CONSUMPTION PER UNIT OF PRODUCT OUTPUT	
	DURING THE YEAR 2000-01	DURING THE YEAR 2000-01
Sabarmati Terminal Station of KAPL, IOCL does not produce any products. It receives petroleum products from Koyali, KAPL through cross-country pipeline. The process does not require raw materials etc. Hence the consumption of raw materials for process is nil.		

PART-C

Pollution	Qty of pollutants discharged mass / day	Concentrations of pollutants in discharges (mass / volume)	Percentage of Variation from prescribed standards with reasons
a) Water	NIL	NIL	-
b) Air	NIL	NIL	-

PART –D
HAZARDOUS WASTES

HAZARDOUS WASTE	TOTAL QUANTITY (KG)	
	DURING THE YEAR 2000-01	DURING THE YEAR 2000-01
a) From Process	NIL	NIL
b) From Pollution Control Facility	NIL	NIL

PART-E
SOLID WASTES

SOLID WASTES	TOTAL QUANTITY (KG)	
	DURING THE YEAR 2000-01	DURING THE YEAR 2000-01
a) From Process	NIL	NIL
b) From Pollution Control Facility	NIL	NIL
c) Qty recycled / reused	NIL	NIL
d) Solid	NIL	NIL
e) Disposed	NIL	NIL

PART-F

The characterisation (in terms of composition and quantum) of hazardous as well as solid wastes and disposal practice adopted for both these categories of wastes : Not applicable as no hazardous or solid wastes are handled / generated in / from process.

PART-G

Impact of pollution abatement measures taken on conservation of natural resources and on the cost of production : No.

PART-H

Additional measures / investment proposal for environmental protection abatement of pollution, protection of pollution : No.

PART-I

Any other particulars for improving the quality of the environment : IOCL is implementing ISO-14001 in its operations in Western Region Pipelines, covering KAPL also.

KAPL/GEN/306 dated 13.09.2000

To,

Member Secretary,
Gujrat Pollution control Board
Paryavaran Bhavan,
Sector-10 A,
Gandhinagar 3820 43

Kind Attention Mr J K Vyas, Environment Environment engineer

Sub Environmental statement for the year 1999-2000

Dear sir,

We are enclosing herewith the Environment statement for the year 1999-2000 in form No - V with all the relevant details This is for your information and record please.

Yours faithfully

(A.K.Singh)
Dy Operations Manager

ए. के. सिंह
उप प्रबंधक (प्रचालन)
इंडियन ऑयल कॉर्पोरेशन लिमिटेड
कोयली-अहमदाबाद-सांगानेर पाइपलाइन
डाकघर [illegible]

C C COM, SMNM for information please
OM(T) Sabarmati for record please
TSM , Gauridad for record Please

19.9.0

GUJARAT POLLUTION CONTROL BOARD
SECTOR-10-A.
GANDHINAGAR-382 043.

FORM-V

ENVIRONMENTAL STATEMENT FOR THE FINANANCIAL YEAR ENDING 31st MARCH-

PART-A

(i) Name & Address of the owner/occupier of the industry operation or process.

M/s. Indian Oil Corporation Limited (Pipelines Division)
Koyali-Ahmedabad Products Pipeline,
P.O. Jawaharnagar,
Baroda – 391 320.

(ii) Industry Category :-
Primary : (STC Code) – NA.
Secondary : (STC Code) – NA.

(iii) Production Capacity : 1.1 Million Metric Ton per year (Designed Capacity of the Pipeline)

(iv) Year of establishment · 1966

(v) Date of last environment statement submitted : 21-09-99

PART-B

Water and Raw Material Consumption :

1. Water Consumption Cu.M / Day :
Process - Nil
Cooling - Nil
Domestic - 1
Cleaning & Gardening etc. - 3

NAME OF PRODUCTS	PROCESS WATER CONSUMPTION PER UNIT OF PRODUCT OUT PUT	
	DURING THE YEAR 1998-99	DURING THE YEAR 1999-2K
Sabarmati Terminal Station of KAPL, IOCL does not produce any products. It receives petroleum products from Koyali, KAPL, through cross country pipeline. The process does not require water except for cleaning etc. Hence the consumption of water for process is nil.		

2. Raw Material Consumption:

NAME OF RAW MATERIAL	PROCESS CONSUMPTION PER UNIT OF PRODUCT OUT PUT	
	DURING THE YEAR 1998-99	DURING THE YEAR 1999-2K
Sabarmati Terminal Station of KAPL, IOCL does not produce any products. It receives petroleum products from Koyali, KAPL, through cross country pipeline. The process does not require raw materials. Hence the consumption of raw materials for process is nil		

PART-C

Pollution	Qty of pollutants Discharged Mass/day	Concentrations of pollutants in Discharges (Mass/Volume)	Percentage of variation From prescribed standards with reasons.
a) Water	Nil	Nil	-
b) Air	Nil	Nil	-

PART - D
HAZARDOUS WASTES

HAZARDOUS WASTE	TOTAL QUANTITY (Kg)	
	DURING THE YEAR 1998-99	DURING THE YEAR 1999-2K
a) From Process	Nil	Nil
b) From Pollution Control Facility.	Nil	Nil

PART-E
SOLID WASTES

SOLID WASTES	TOTAL QUANTITY (Kg)	
	DURING THE YEAR 1998-99	DURING THE YEAR 1999-2K
a) From Process	Nil	Nil
b) From Pollution Control Facility.	Nil	Nil
c) Qty recycled/reused	Nil	Nil
d) Solid	Nil	Nil
e) Disposed.	Nil	Nil

PART-F

The Characterization (in terms of composition and quantum) of hazardous as well as solid wastes and disposal practice adopted for both these categories of wastes: Not applicable as no hazardous or solid wastes are handled/generated in/from process.

PART-G

Impact of pollution abatement measures taken on conservation of natural resources and on the cost of production No

PART-H

Additional measures/investment proposal for environmental protection abatement of pollution, protection of pollution : No.

PART-I

Any Other particulars for improving the quality of the environment : IOCL is implementing ISO-14001 in its Operations in Western Region Pipelines, covering KAPL also.

Annexure 27: Environmental Policy

इंडियन ऑयल कॉर्पोरेशन लिमिटेड.

INDIAN OIL CORPORATION LTD.

पश्चिमी क्षेत्र पाइपलाइन्स

WESTERN REGION PIPELINES

50

पर्यावरण नीति

हम पश्चिमी क्षेत्र पाइपलाइन्स में सम्मिलित सलाया-मथुरा क्रूड ऑयल पाइपलाइन एवं कोयली-अहमदाबाद प्रोडक्ट पाइपलाइन को निम्नांकित उपायों द्वारा एक उत्तरदायी पर्यावरण तरीके से प्रचालित व अनुरक्षित करने तथा पर्यावरण संपादन में सतत सुधार एवं प्रदूषण निवारण करने के लिए प्रतिबद्ध हैं ;

1. पर्यावरण सम्बन्धी समस्त आवश्यक कानूनों एवं अन्य अविधायी मार्गदर्शनों का अनुपालन ।
2. प्रौद्योगिकी मे प्रोन्नति ।
3. संसाधनों का समुचित उपयोग ।
4. पर्यावरण संरक्षण के प्रति हमारी दिलचस्पी के बारे में कर्मचारियों, विक्रेताओं, ठेकेदारों एवं पाइपलाइनों के आस पास की आम जनता के मन में जागरुकता उत्पन्न करना ।
5. स्लज उत्पत्ति में कमी एवं उसका उचित प्रबंध व निपटान ।

(एच. पारेख)
उप महाप्रबंधक (प.क्षे)

ENVIRONMENT POLICY

WE AT WESTERN REGION PIPELINES COMPRISING SALAYA-MATHURA CRUDE OIL PIPELINE AND KOYALI-AHMEDABAD PRODUCT PIPELINE ARE COMMITTED TO OPERATE AND MAINTAIN THE PIPELINES IN AN ENVIRONMENTAL RESPONSIBLE MANNER WITH CONTINUAL IMPROVEMENT IN ENVIRONMENTAL PERFORMANCE AND POLLUTION PREVENTION BY :

1. COMPLYING WITH ALL REQUISITE ENVIRONMENTAL LEGISLATIONS AND OTHER ENVIRONMENTAL NON REGULATORY GUIDELINES.
2. UPGRADATION OF TECHNOLOGY.
3. OPTIMUM UTILISATION OF RESOURECS.
4. INCULCATING AWARENESS ABOUT OUR CONCERN FOR CONSERVING ENVIRONMENT AMONGST OUR EMPLOYEES, VENDORS,CONTRACTORS AND THE PEOPLE AROUND THE PIPELINES.
5. REDUCTION IN SLUDGE GENERATION AND APPROPRIATE HANDLING AND DISPOSAL.

(H. PAREKH)
DGM (WR)

પર્યાવરણ નીતિ

અમે પશ્ચિમ ક્ષેત્ર પાઈપલાઈન્સ કે જેમાં સલાયા-મથુરા ક્રુડ ઑયલ પાઈપલાઈન અને કોયલી-અમદાવાદ પ્રોડકટ પાઈપલાઈનનો સમાવેશ થાય છે નીચેના ઉપાયો દ્વારા એક જવાબદાર પર્યાવરણની રીતે પ્રચાલન અને અનુરક્ષણ કરવા, પર્યાવરણના સંપાદનમાં સતત સુધારો કરીને તથા પ્રદુષણને રોકવા કટીબદ્ધ છીએ;

૧. પર્યાવરણ સંબંધી દરેક જરૂરી કાયદાઓ તથા બીજા પર્યાવરણ સંબંધી અવિધાયી માર્ગદર્શનોનું પાલન.
૨. પ્રૌદ્યોગિકીમાં ઉન્નતિ.
૩. સંસાધનોનો મહત્તમ ઉપયોગ.
૪. પર્યાવરણ જાળવણી તરફ આપણી રુચીનું કર્મચારીઓ, વિક્રેતાઓ, ઠેકેદારો તથા પાઈપલાઈનની આસપાસની જનતામાં જાગૃતતા ઉત્પન્ન કરવી.
૫. સ્લજ ઉત્પત્તિ ઓછી કરી અને ઉચિત પ્રબંધ અને નિકાલ.

(એચ. પારેખ)
ઉપ મહાપ્રબંધક (પ.ક્ષે.)

Annexure 28: Corporate SHE policy

Indian Oil Corporation Ltd
(Pipelines Division)
Koyali Ahmedabad Products Pipeline
PO: Jawaharnagar, Dist : Baroda

Inter Office Memo

From: SMNM, KAPL KOYALI — Ref: KAPL/MNT/514
Date:28/09/2001

For : DMPA/DMTM/DM(T&I)/DFM/SO&ME(TS)/
SO&ME(HGPT)/SO&ME/O&ME(C.ROOM) KAPL KOYALI
SO&ME/O&ME(SBT) – Through – SOM(T)

SUB: CORPORATE POLICY ON S, H & E

Enclosed please find a corporate policy on S, H & E received vide IOM No. PL/HO/S &EP/01 dated 24/09/2001 for circulation and making awareness to all concerned under you and its display at prominent places.

(G.S.Singh)

CC: DGM (KAPL & KNPL) - for information please.
CC: STSM KAPL KOYALI
CC: SOM KAPL KOYALI
CC: SOM KAPL SABARMATI

SAFETY, HEALTH & ENVIRONMENT POLICY

" INDIAN OIL CORPORATION IS COMMITTED TO CONDUCT BUSINESS WITH STRONG ENVIRONMENT CONSCIENCE ENSURING SUSTAINABLE DEVELOPMENT, SAFE WORKPLACES AND ENRICHMENT OF QUALITY OF LIFE OF EMPLOYEES, CUSTOMERS AND THE COMMUNITY. WE, AT INDIAN OIL, BELIEVE THAT GOOD S, H&E PERFORMANCE IS AN INTERGRAL PART OF EFFICIENT AND PROFITABLE BUSINESS MANAGEMENT. WE SHALL:

- Establish and maintain good standards for safety of the people, the processes and the assets.
- Comply with all Rules and Regulations on Safety, Occupational Health and Environmental Protection.
- Plan, design, operate and maintain all facilities, processes and procedures to secure sustained Safety, Health and Environmental Protection.
- Remain trained, equipped and ready for effective and prompt response to accidents and emergencies.
- Welcome audit of our S, H & E conduct by external body, so that stakeholder confidence is safeguarded.
- Adopt and promote industry best practices to avert accidents and improve our S,H&E performance.
- Remain committed to be a leader in Safety, Occupational Health and Environmental Protection through continuing improvement.
- Make efforts to preserve ecological balance and heritage."

REF-PL/HO/S&EP/01 DT. 24/09/2001 RECEIVED FROM HO

Indian Oil Corporation Limited
27 SEP 2001
RECEIVED

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
पाइपलाइन्स प्रभाग
नौएडा ।

अंतर्कार्यालय ज्ञापन

प्रेषक - उप-महाप्रबधक (तकनीकी) पाइपलाइन्स मुख्यालय, नौएडा ।	प्रेषिती : उप-महाप्रबंधक :बीकेपीएल, बरौनी/एसएमपीएल, वॉडीनार/ केबीपीएल, कॉडला/ केएपीएल,कोयाली / पु0क्षेत्र-कोलकाता//पक्षे-गौरीदढ/उत्तरी क्षेत्र-पानीपत मुख्य प्रबंधक: जीएसपीएल,गुवाहाटी/ एचबीसीपीएल,हाल्दिया/ एचएमआरबी, मौरीग्राम/केबीपीएल पानीपत/ एसएमपीएल वीरमगाम/ एसएमपीएल चाक्सु/एमजेपीएल - बिजवासन
सदर्भ संख्या0 पीएल/एचओ/एस एड ई पी/01/27-270	
दिनाक 24.9.2001	

विषय: सुरक्षा, स्वास्थ्य व वातावरण पर कॉर्पोरेट नीति(Policy)

सुरक्षा, स्वास्थ्य व वातावरण पर कॉर्पोरेट नीति (Policy) को बोर्ड ने अनुमोदित कर दिया है जिसकी प्रति आपके अधीनस्थ संस्थापनाओं में विस्तृत परिसंचरण(circulation) हेतु संलग्न है। इस नीति को प्रत्येक संस्थापना में महत्वपूर्ण [Prominent] स्थानों पर प्रदर्शित किया जाए।

24
(के के झा)
उप महाप्रबन्धक[तकनीकी]

संलग्नक: उपर्युक्तानुसार

प्रति :

कार्यकारी निदेशक(प्रचालन) /प्रोजेक्ट - आपकी सूचना हेतु
महाप्रबन्धक(तकनीकी)/वित/सी एंड एस/ इन्जी. पीएल एचओ नौएडा ।
उप महा प्रवन्धक(प्रभारी) पीएल एचओ, नोएडा।
महाप्रबंधक[आई/सी], ईआरपीएल, कोलकाता/ महाप्रबंधक प.क्षे. पाइपलाइन, गौरीदढ/महाप्रबंधक-एनआरपीएल, पानीपत/
एसआईसी: जीएसपीएल, गुवाहाटी/बैटकुची/बोगईगॉव/मदारीहाट/सिलिगुड़ी
एचएमआरबीपीएल, हाल्दिया/मौरीग्राम/राजबंध/आसनसोल/बज-बज
एचबीसीपीएल,हाल्दिया/बोलपुर/बरौनी बीकेपीएल,बरौनी/पटना/मुगलसराय/इलाहाबाद/कानपुर/एमजेपीएल-
मथुरा/बिजवासन/अम्बाला/जलंधर/केबीपीएल,कॉडला/सिद्पुर/आबुरोड़/सलावास/बिआवर/संगरूर/रिवाडी/पानीपत/सैंगानेर/
मटिंडा/एसएमपीएल,वाडीनार/जामनगर/गौरीदढ/सुरेन्दरनगर/वीरमगाम/रामसर/बरेजा/कोयाली/सिद्पुर/आबुरोड/
कोट/कन्टालिया/सैन्द्रा/चाक्सु/रिवाड़ी/मथुरा/पानीपत **केएपीएल, कोयाली**/साबरमती ।

Safety, Health & Environment policy

"Indian Oil Corporation is committed to conduct business with strong environment conscience ensuring sustainable development, safe workplaces and enrichment of quality of life of Employees, Customers and the Community. We, at IndianOil, believe that good S, H&E performance is an integral part of efficient and profitable business management. We shall:

- Establish and maintain good standards for safety of the people, the processes and the assets.
- Comply with all Rules and Regulations on Safety, Occupational Health and Environmental Protection.
- Plan, design, operate and maintain all facilities, processes and procedures to secure sustained Safety, Health and Environmental Protection.
- Remain trained, equipped and ready for effective and prompt response to accidents and emergencies.
- Welcome audit of our S, H&E conduct by external body, so that stakeholder confidence is safeguarded.
- Adopt and promote industry best practices to avert accidents and improve our S,H&E performance.
- Remain committed to be a leader in Safety, Occupational Health and Environmental Protection through continuing improvement.
- Make efforts to preserve ecological balance and heritage "

nexure 29: Status of EMS Programmes at KAPL and Environmental Audit findings

INDIAN OIL CORPORATION LIMITED
(Pipelines Division)
KOYALI AHMEDABAD PRODUCTS PIPELINE
PO: Jawaharnagar, Dist : Baroda

INTER OFFICE MEMO

FROM	**: SOME(TS) KAPL KOYALI**	**TO**	**: M(S&EP) & MR(ISO-14001) SMPL GAURIDAD**
REF NO	**: KAPL/ISO-14001/EMS PROG**		
DATE	**: 09/02/2002**		

Sub :-- Status of EMS Programmes of KAPL and other activities for the quarter ending December 2001

Please find attached herewith the following reports for your information and record :-

1.	Quarterly Status of EMS Programmes for KAPL – Koyali & Sabarmati	Annexure-I
2	Monitoring and Measuring of Key Parameters	Annexure-2
3	Regulatory Compliance Monitoring	Annexure-3
4	Audit Compliance Report Internal Audit & External Audit	Annexure- 4

The Water and Air Consents for KAPL Sabarmati have been obtained and are valid upto 31/07/2005.

(Sheela Pillai)) 9/2/02

Report sent through e-mail on 09/02/2002

cc :- STSM / DGM KAPL .... **for information please.**
SOM(T) SBT ....**for record please.**

ANNEXURE - I

QUARTERLY STATUS OF EMS PROGRAMMES OF KAPL

(status as on December 2001)

S.NO	DETAILS OF PROGRAMMES	TARGET	STATUS
1	To plant 200 saplings in villages along KAPL ROW every year	Identification of villages - April 2001	Villages Vadod, Akhdol, Mitral identified.
		Procurement of saplings / lining of up agency & planting of saplings - July 2001	Planting of 200 saplings completed in July 2001 at Akhdol Primary Health Centre and Primary School ,Mitral Primary School , and Vadod Primary School.
2	To cover 4 villages along KAPL ROW on Environmental Awareness every year.	Identification of villages - April 2001	Villages identified - Akhdol, Vadod, Mitral.
		Printing of materials and conducting awareness programmes – July 2001	Environment Awareness material and also leaflets on safety along the ROW with DOs DONTs in case of accidental release of products printed and awareness programmes conducted at Akhdol, Vadod & Mitral villages in July 2001

ANNEXURE-2

MONITORING AND MEASUREMENT OF KEY PARAMETERS

AT KAPL KOYALI

(status as on December 2001)

S.NO	PARAMETER	DUE DATE	ACTION TAKEN
1	Water discharged from Koyali	-	No ETP/OWS at KAPL Koyali. Water drain is connected to ETP of GR.
2	Emission of Air	-	Koyali operations do not generate any air emissions. The ambient air monitoring is being done by GR.
3	Noise Levels	22-07-2001 (yearly)	Noise measurements carried out in Aug. / Sept. 2001 at Koyali & SBT

AT KAPL SABARMATI

S.NO	PARAMETER	DUE DATE	ACTION TAKEN
1	Water discharged from OWS	As and when discharged	Discharge sample tested in September 2001 and results are within the acceptable limits
2	Emission of Air	Monthly	Testing of samples from exhaust of DG Set and Fire Fighting Engine done on 26/09/2001 and for Ambient Air on 26/092001 and within permissible limits.
3	Noise Levels	Yearly	Last noise measurements done in September 2001.

ANNEXURE-3

REGULATORY COMPLIANCE MONITORING

AT KAPL KOYALI

(status as on December 2001)

S.NO	REGULATORY COMPLIANCE	REMARKS
1	The Water Act 1974	KAPL Koyali is within the premises of GR and so the consent of GR also covers KAPL. The necessary reports and returns are being furnished by GR
2	Air Act 1981	KAPL Koyali is within the premises of GR and so the consent of GR also covers KAPL. The necessary reports and returns are being furnished by GR
3	Environmental Protection	Environmental Statement is submitted by GR every year
4	Hazardous Wastes	KAPL Koyali & SBT are not handling any hazardous wastes
5	Manufacture / Storage / Import of Hazardous Chemicals Rules 1989	KAPL Koyali has license to import and store petroleum products vide no P-12(1250/160/GJ/BRD-350 upto 4000 lts From CCE Nagpur
6	Public Liability	Indian Oil corporation Ltd has Policy No 021800/000/46/56/003/01-02 VALID UPTO 31 03 2002 and covering all units

FOR KAPL SABARMATI

S.NO	REGULATORY COMPLIANCE	REMARKS
1	The Water Act 1974	Water Consent Order Ni 18506 valid for a period of 6 years upto 31-07-2005 has been obtained
2	The Air Act 1981	Air Consent Order No. 12681 valid for a period of 6 years upto 31-07-2005 has been obtained
3	Environmental Protection	Environmental Statement for SBT is being submitted every year tp GPCB, Gandhinagar. Statement for 2000-01 submitted in Sept.2001 and acknowledgement received

ANNEXURE -4

STATUS OF COMPLIANCE OF INTERNAL AUDIT OBSERVATIONS

Station : KAPL KOYALI
Date of Audit : 31/10/2001

(status as on December 2001)

S.NO	OBSERVATION	STATUS
1	Local Review Meetings are not conducted regularly	Approval taken for quarterly review meetings and first meeting held on 27/12/2002 COMPLIED.

Station KAPL SABARMATI
Date of Audit 12/10/2001

OBERVATIONS - NIL

S.NO	OBSERVATION	STATUS
	All documents found in order	COMPLIED

STATUS OF COMPLIANCE OF EXTERNAL AUDIT OBSERVATIONS

Station . KAPL SABARMATI
Date of Audit · 30/07/2001

OBERVATIONS - NIL

INDIAN OIL CORPORATION LIMITED
(Pipelines Division)
KOYALI AHMEDABAD PRODUCTS PIPELINE
PO: Jawaharnagar, Dist : Baroda

INTER OFFICE MEMO

FROM	**: DMTS KAPL KOYALI**	**TO :**	**M(S&EP) & MR(ISO-14001) SMPL GAURIDAD**
REF NO	**: KAPL/ISO-14001/EMS PROG**		
DATE	**: 26/07/2002**		

Sub :-- Status of EMS Programmes of KAPL and other activities for the quarter ending June 2002

Please find attached herewith the following reports for your information and record :-

1	Quarterly Status of EMS Programmes for KAPL – Koyali & Sabarmati.	Annexure-I
2	Monitoring and Measuring of Key Parameters	Annexure-2
3	Regulatory Compliance Monitoring	Annexure-3
4	Audit Compliance Report Internal Audit & External Audit	Annexure- 4

The Water and Air Consents for KAPL Sabarmati have been obtained and are valid upto 31/07/2005.

शीला पिल्लै
(Sheela Pillai)

Report sent to G'dad / SBT through e-mail.

cc :- **STSM / DGM KAPL** .... **for information please.**
SOM KAPL SBT .... **for record please.**

ANNEXURE – I

QUARTERLY STATUS OF EMS PROGRAMMES OF KAPL FOR 2002-03

(status as on June 2002)

S.NO	DETAILS OF PROGRAMMES	TARGET	STATUS
1	To plant 200 saplings in villages along KAPL ROW every year	Identification of villages - May 2002	Villages have been identified – Damapura, Pirana, Navagam and Oad.
		Procurement of saplings & planting of saplings - September '02	Procurement of Saplings being taken up. 50 saplings to be planted in each village.
2	To cover 4 villages along KAPL ROW on Environmental Awareness every year.	Identification of villages - May 2002	Villages identified – Damapura, Pirana, Navagam and Oad.
		Printing of materials and conducting awareness programmes – July 2001	Environment Awareness material and also leaflets on safety along the ROW with DOs / DONTs in case of accidental release of products printed.

STATUS OF PENDING ONE VILLAGE AWARENESS PROGRAMME FOR 2001-02

Environement Awareness Programme was carried out in Village Damapura on 31/5/02. The programme was attended by approx. 100 villagers including Village sarpanch, School Principal, Ex-Village panchayat member and local Education Committee chairman. Environment Awareness material and also leaflets on safety along the ROW with Dos / DONTs in case of leak was distributed and villagers made aware of the same.

ANNEXURE-2

MONITORING AND MEASUREMENT OF KEY PARAMETERS

AT KAPL KOYALI

(status as on June 2002)

S.NO	PARAMETER	DUE DATE	ACTION TAKEN
1	Water discharged from Koyali	-	No ETP/OWS at KAPL Koyali Water drain is connected to ETP of GR
2.	Emission of Air	-	Koyali operations do not generate any air emissions The ambient air monitoring is being done by GR
3.	Noise Levels	22-07-2001 (yearly)	Noise measurements carried out in Aug. / Sept 2001 at Koyali & SBT

AT KAPL SABARMATI

S.NO	PARAMETER	DUE DATE	ACTION TAKEN
1	Water discharged from OWS	As and when discharged	Discharge sample tested in September 2001 and results are within the acceptable limits
2	Emission of Air	Monthly	Testing of samples from exhaust of DG Set and Fire Fighting Engine and for Ambient Air on 18/05/02 and within permissible limits.
3	Noise Levels	Yearly	Last noise measurements done in September 2001

ANNEXURE-3

REGULATORY COMPLIANCE MONITORING

AT KAPL KOYALI

(status as on June 2002)

S NO	REGULATORY COMPLIANCE	REMARKS
1	The Water Act 1974	KAPL Koyali is within the premises of GR and so the consent of GR also covers KAPL. The necessary reports and returns are being furnished by GR
2	Air Act 1981	KAPL Koyali is within the premises of GR and so the consent of GR also covers KAPL. The necessary reports and returns are being furnished by GR.
3	Environmental Protection	Environmental Statement is submitted by GR.
4	Hazardous Wastes	KAPL Koyali & SBT are not handling any hazardous wastes.
5	Manufacture / Storage / Import of Hazardous Chemicals Rules 1989	KAPL Koyali has valid license to import and store petroleum products vide no: P-12 (1250/160/GJ/BRD-350 upto 4000 lts. From CCE Nagpur
6	Public Liability	Indian Oil corporation Ltd. has Policy No. 021800/000/46/56/1001/02-03 valid upto 31.03.2003 and covering all units.

FOR KAPL SABARMATI

S NO	REGULATORY COMPLIANCE	REMARKS
1	The Water Act 1974	Water Consent Order Ni : 18506 valid for a period of 6 years upto 31-07-2005 has been obtained
2	The Air Act 1981	Air Consent Order No: 12681 valid for a period of 6 years upto 31-07-2005 has been obtained
3	Environmental Protection	Environmental Statement for SBT is being submitted every year tp GPCB, Gandhinagar. Statement for 2000-01 submitted in Sept.2001 and acknowledgement received. (Next due in Sept. '02)

ANNEXURE –

STATUS OF COMPLIANCE OF INTERNAL AUDIT OBSERVATIONS

Station : KAPL KOYALI
Date of Audit : 08/04/2002

(status as on June 2002)

S.NO	OBSERVATION	STATUS
1.	Four Villages identified for tree plantation and awareness programmes Out of 4 villages, 3 have been covered, one leftover due to communcal riots Though it is planned to observe in the month of April / May 2002, its approval is required	Environment Awareness Programme was carried out in Village Damapura on 31/5/02. The programme was attended by approx 100 villagers including Village Sarpanch, School Principal, Ex-Village panchayat member and local Education Committee chairman Environment Awareness material and also leaflets on safety along the ROW with Dos / DONTs in case of accidental release of products were distributed and villagers made aware of the same. COMPLIED

Station : KAPL SABARMATI
Date of Audit : 09/05/2002

S.NO	OBSERVATION	STATUS
1	Water Cess not paid for Sabarmati Borewell	Water Cess upto 2003 paid to GPCB COMPLIED
2.	Communication Register to be maintained on regular basis	Updated and complied
3.	Environment Related Mock Drill not conducted.	Done 0n 31/5/03 alongwith Monthly Fire Mock Drill COMPLIED

STATUS OF COMPLIANCE OF EXTERNAL AUDIT OBSERVATIONS

Station : KAPL SABARMATI
Date of Audit : 30/07/2001

OBERVATIONS - NIL

Annexure 30: Findings of the Surveillance audit by DNV

27 JUL 2000

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
SALAYA MATHURA PIPELINE
GAURIDAD
INTER OFFICE MEMO

From :M(S&EP) & MR (ISO – 14001) SMPL, Gauridad	TO : DGM(O) Vadinar COM – KAPL Koyali SOM – Gauridad/ Viramgam OM – S'nagar/ Koyali
REF : SMPL/RAJ/TS/58.0.0	DATE : Friday, July 21, 2000

Sub. ISO 14001 Surveillance Audit by M/S DNV

The iv th Surveillance Audit on Environment Management System of WRPL by M/S DNV will be conducted from 16th August to 18th August 2000 .The schedule for the audit is appended

Date	Time	Station	Remarks
16/08/2000	1000-1300	Vadinar	Opening meeting and audit of the station and proceed to Gauridad
17/08/2000	1000-1300	Gauridad	Audit of Gauridad station
	1530-1730	Surendranagar	Audit of S'nagar & night halt
18/08/2000	1100-1300	KAPL Koyali	Audit of KAPL Koyali pump station
	1430-1630	SMPL Koyali	Audit of SMPL Koyali delivery station followed by closing meeting

This is for your information and necessary action please. A checklist is also enclosed for ready reference, which may be helpful in preparing for the audit.

Encl.: as above

21/7/2k
(R.K.Acharya)

CC : GM WRPL/DGM(O) WRPL
COM/CHRM/CMNM/CFM/SM(T&I)/SMTM/STRM }for kind information pl.
CC : DMO , Vadinar (Sh.SA Khan) – AMR Vadinar
TSM, Viramgam, (Sh.L.C.Saha) – AMR Vgm Base
DMO, KAPL, Koyali (Sh.A.K.Singh) – AMR, Koyali

ENVIRONMENT MANAGEMENT SYSTEM
Check list for Internal Audit

STATION: DATE OF AUDIT:

S. N.	ITEM DESCRIPTION	CHECKED (YES/NO)
1.	Status of closure of NC/Observations of previous audits • Internal audits • Surveillance audit by DNV	
2.	Status of compliance of legislative requirements (as per procedure No. WRPL/EPM/4/12)	
3.	Status of implementation of Environment Management Programmes (as per procedure No. WRPL/EPM/4/3)	
4.	Status/Progress on Environmental objectives and targets	
5.	Environmental Policy : • Is it displayed at the prominent locations. • Is it known to the employees.	
6.	Training/Awareness of the employees : • Are the concerned employees aware of the Role & responsibility of persons in compliance of Environment policy, EMS, emergency preparedness and the consequences on non-compliance of the operating procedure. • Whether shop floor discussions/competitions, in-house journals are carried out to create awareness amongst employees •	
7.	Communication : Whether communication register is maintained	
8.	Emergency Preparedness & Response • Whether DMP is available with concern official • Whether Mock drills are conducted regularly and corrective action taken to overcome identified gaps/ shortcomings •	
9.	Whether applicable operational control procedures being followed (Procedure Nos. WRPL/EPM/4/9.1 to 9.6)	
10.	Whether review meetings are conducted regularly.	

INDIAN OIL CORPORATION LIMITED
(PIPELINES DIVISION)
KOYALI-AHMEDABAD PRODUCTS PIPELINE.

INTER OFFICE MEMO

FROM : DMO/KAPL/ KOYALI REF :KAPL/ ML/GEN/306 DATE 22.06.2000	TO :OM (T)/KAPL /SBT

SUB: -Compliance status NC/ observation of surveillance Audit of EMS

Enclosed please find herewith the NC / observation of surveillance audit of EMS conducted on 23rd & 25 th February2000 by M/s DNV.
You are kindly requested to send the compliance status, pertaining to your station at the earliest to GAURIDAD with a copy to COM, KAPL, KOYALI.

22/6/2k

(A.K .SINGH)

C.C. COM/SMNM/ KAPL, KOYALI -for a kind information please.

INDIAN OIL CORPORATION LIMITED
SALAYA MATHURA PIPELINE

INTER OFFICE MEMO

FROM : TSM & MR SMPL
GAURIDAD

TO : DGM (O)VAD
COM KAPL KOYALI
SOM REW
SIC SID/ABU/KOT
KOYALI/
BAREJA/PAN/

Ref. No.: SMPL/RAJ/TS/58.0.0

Date :8/6/2000

Sub: **Environmental Management System-NC/Observation of M/s DNV**

2nd & 3rd Surveillance Audit of EMS of WRPL was conducted by M/s DNV from 23rd to 25th Feb. 2000 at Jamnagar, Gauridad, Surendranagar, Viramgam,Sabarmati, Kantalia, Sendra, Ramsar, Chaksu & Mathura stations. The NCs/Observations raised during the audit are enclosed herewith for reference & further necessary action please.

(V.C. SATI)

2nd Surveillance Audit by M/s DNV

DEPARTMENT	FINDINGS
OPERATION (GAURIDAD)	The consent granted for water (prevention and control of pollution) has expired on 31.8.1999. New consent is yet to be received. Water consumption statement for cess is not being sent regularly to the GPCB as required under earlier consent conditions.
MANAGEMENT (GAURIDAD) (JAMNAGAR) (SURENDRANAGAR) (VIRAMGAM) (SABARMATI)	The is no evidence that the Environment Policy Objectives like Resource Conservation, Prevention of Pollution/Improvement of Environment are formally reviewed (regarding level of achievement) and documented at individual stations. This information can work as an input for the Steering Committee Meetings.
STORAGE (SURENDRANAGAR) (VIRAMGAM)	MS Pipelines and Plates are lying in the open without any cover/ protective coating against corrosion.This is not in accordance with the Env. Policy of Resource Conservation.
OPERATION (VIRAMGAM)	Oil drums were found stored near the Engine Room on unlined kaccha soil and soil contamination was observed due to oil seepage. Preventive measures like making a pucca plateform were not considered for containment.
OPERATIONS (VIRAMGAM)	Seal oil drain pipe of Booster Pump no.1 was found removed from the drain funnel resulting the soil contamination . This is indicative of lack of Environmental awareness of the persons attending to the job. Last Env. Awareness Training was conducted in June 1998. Need assessment for refresher training was not evidenced after that.

I/PA2/33	MANAGEMENT (VIRAMGAM.)	Intimation to GPCB regarding Hazardous Waste (oil sludge) collected/deposited was last sent in Sept. 1998. Next statement was due in Sept. 1999. No evidence was available that this statement was sent. At present all the sludge lagoons are full of sludge and urgent action for its disposal is warranted.
I/PA2/34	MANAGEMENT (VIRAMGAM)	Water with oil traces is being stored in burrow pit which is unlined. As per consent condition, ground water in the vicinity of the pit is to be analysed and report of analysis is to be sent to GPCB every 6 months. However, this is not being done. Also there is no consent from GPCB for holding water in Burrow pit.
I/PA2/35	MANAGEMENT (VIRAMGAM)	- Operating Instructions for proper operational control of oil water seperation facility are not available. Oil was found flowing back into the open surface drain. -Aspect of water disposal from oil storage tanks after hydraulic testing has not been considered. Nor any operational control procedure for this aspect has been made.

3rd Surveillance Audit by M/s DNV

NCN	STATION	FINDING
1/36	KANTALIA (MANAGEMENT)	At the time of carrying out fire drill an observer needs to be appointed who objectively watches the process and notes down important points for subsequent discussion/ implementation to improve effectiveness of drill.
1/37	SENDRA (MANAGEMENT)	Fire water tank only one existing was last cleaned in Aug'97. Cleaning frequency needs to be increased.
1/38	SENDRA (MANAGEMENT)	Environmental Management program EMP number EMPM/5 target date of Jul'99 is long over yet the action is out standing & overdue.
1/39	MATHURA (INTERNAL EMS AUDIT)	Internal EMS audit observation dated 29 Oct'99 remains inactioned till date.

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
SALAYA MATHURA PIPELINE
GAURIDAD

INTER OFFICE MEMO

From :M(S&EP) & MR SMPL, Gauridad	TO : COM – KAPL Koyali SOM/ SMTM – Gauridad
REF : SMPL/RAJ/TS/58.0.0 (iv)	DATE : 24/08/2000

Sub: ISO – 14001 surveillance Audit by M/S DNV

The fourth surveillance Audit of Environmental Management system of WRPL was conducted by M/S DNV during the period from 16/08/2000 to 18/08/2000 at five stations. Total four numbers of NCs were raised during the audit. The NCs alongwith proposed corrective actions are enclosed herewith. It is requested that necessary actions may please be taken at your end for closure of NCs at the earliest.

Encl. : as above

(R.K.Acharya)

CC : DGM(O), WRPL, Gauridad – for kind information pl
DGM(O) Vadinar – for kind information pl.
OM , S'nagar - "

Ivth Surveillance Audit by M/S DNV conducted on 16th to 18th Aug'2000

SL NO.	DEPARTMENT	FINDINGS	CORRECTIVE ACTION
1/40	OPERATION (GAURIDAD)	SPM level of pump no. MP-3 & MP-4 was observed to increase from 85 to 121 in last 12 months, but the reasons for increase in SPM level is not analysed nor any action were initiated	The SPM level is well within the permissible limit of 150 ppm. The reasons for increase in SPM level is analysed and it is observed that, SPM level attends higher valve just before any schedule maintenance and become normal after maintenance is carried out. **NC is closed**
1/41	STORAGE (GAURIDAD)	Line pipe of various sizes were observed to laying on bare earth and were observed to be rusted and scaled causing resource depletion.	Suitable arrangement for storing of mainline pipes is being planned . Target : October 2000
1/42	OPERATION (GAURIDAD)	Near pump house , for sump tank and sump pump spillage was observed causing ground pollution . No containment is provided.	Containment around sump tank and sump pump is being planned. Target : September 2000
1/43	OPERATION (KOYALI)	In corrosion inhibition area leakage of corrosion inhibitor was observed in following locations a- Dosage pump nipple b- Pr. Gauge nipple c- Gate valve gland d- Level gauge e- Inhibitor drums (containment not provided) causing land contamination/ resource depletion. MSDS guideline to dyke-spilled corrosion inhibitor into sewer/ water channel is also not followed.	Leakage at different points are being arrested. Target : September 2000

From:
DMO.KAPL.Koyali

To:
M (S & EP) ,SMPL, G'dad.

Ref: KAPL/ML/GEN/3.6
Date: 06/10/2000

Sub: **Compliance report of NC for IV th surveillance Audit of ISO -14001 on 18/08/2000**

Attached here with the statement showing the status of action taken against ONE no. of NC made during surveillance audit done by DNV on 18/08/2000

Sr no	NC	Target	Action taken
1	In corrosion inhibitor area leakage of CI was observed in following locations • Dosage pump nipple • Pressure gauge nipple • Gate valve glands • Level gauge • Inhibitor drum area	Sep' 2000	Leakage from CI pump Nipple ,Pressure gauge nipple ,gate valve glands were arrested CI dyke area shielded completely on 08.09.2000

This is for your kind information and record please.

(A K Singh)

6 10/2K

CC COM/SMNM - fro information please
OM (T) SBT for record please.

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
SALAYA MATHURA PIPELINE
GAURIDAD

INTER OFFICE MEMO

From :M(S&EP) & MR SMPL, Gauridad	TO : COM - Chaksu SOM- Ramsar OM - Kot/ KAPL Sabarmati MNM,(P/S) Gauridad
REF : SMPL/RAJ/TS/58.0.0 (iv)	DATE : Saturday, April 28, 2001

Sub: ISO - 14001- Vth surveillance Audit by M/S DNV

The vth surveillance Audit of Environmental Management system of WRPL was conducted at Chaksu, Ramsar, Kot, KAPL Sabarmati & Gauridad during the period from 27th to 30th March 2001 by Mr.Sanjay Prakash, DNV auditor and observed 6 NCs of category 2 . The station wise status is detailed below

1. Chaksu pump station & tank farm : 2 NCs
2. Ramsar pump satation : NIL
3. Kot pump station : 1 NC
4. KAPL Sabarmati : NIL
5. Gauridad pump station, Management: 1 NC & Process(Operation) 2 NCs

The NCs alongwith proposed corrective actions are enclosed herewith. It is requested that necessary actions may please be taken at your end for closure of NCs at the earliest.

Encl. : as above

(R.K.Acharya)

CC : DGM(O), WRPL, Gauridad /DGM(O)KAPL - for kind information pl.
CC : SOM , Sendra/ Gauridad P/S
CC : M(T&I) , Chaksu (Sh.R.Lal) - AMR Chaksu
OM, Sendra, (Sh.Kapil Mathur) - AMR Sendra
Const. M, KAPL, Koyali (Sh.A.K.Singh) - AMR, Koyali

Annexure

vth Surveillance Audit by M/S DNV conducted during 27th to 30th March 2001

sl no.	Department	Findings	Corrective Action	Status
1/44	Mainline (Chaksu)	Periodic monitoring of pipeline emergency tools is not evidenced e.g. (i) Flame proof lights were not having bulbs/ cords (ii) Fuel for portabler generator set (iii)Public address system was not working	The same shall be attended before 31.3.2001 and the mechanism shall be developed to monitor the above periodically.	Implemented **NC is closed**
1/45	Operation (Chaksu)	Near fuel extraction line- earth is observed to be polluted with oil	Polluted earth shall be removed from above and any other location by 15/4/2001 and shall be replaced by good soil. Polluted soil shall be kept in contained area.	Implemented **NC is closed**
1/46	Management (Kot)	As per air consent no. FS (PA - 430) RPC/G-11/400 dated 01/5/2000, compliance to general condition as per comprehensive guidelines of RPCB is required but the same was not available.	Same will be made available by 15/4/2001 and shall be verified for compliance by 15/5/2001.	RPCB guideline has been collected & being verified.
1/47	OPERATION (GAURIDAD)	Below strainer & recycling valve/ line the earth is observed to be polluted with oil	Polluted earth shall be removed and shall be disposed off suitably before 15th May 2001.	Implemented **NC is closed**
1/48	OPERATION (GAURIDAD)	In Jan'01 crude tank having capacity 250 kl was cleaned. The sludge removed was filled in approximately 66 drums of 200 lit. each and kept within the dyke valve, but no records were prepared in form 3 as required by hazardous waste (Management & Handling rule)	Record shall be prepared as per Form - III before 20th April'01.	Form 3 is filled in **NC is closed**
1/49	Management (Gauridad)	(1) The ENV policy states that "------ comply to other environmental non-regulatory guideline- but the same were not available nor known to the station in charge. (2) Applicability of ODS regulation and Hazardous waste (Mfg. & handling) rule has not been verified for various stations	(1) The same shall be specified in specific fashion (2) Applicability shall be reviewed	Details of non regulatory guidelines to be followed shall be indicated Target – 15/05 Target – 15/05/ 2001

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
SALAYA MATHURA PIPELINE
GAURIDAD
INTER OFFICE MEMO

From :M(S&EP) & MR SMPL Gauridad	TO : COM – Viramgam/ Vadinar (Officiating) SOM- Gauridad/ Bareja/ KAPL SBT. OM – Jamnanagr
REF : SMPL/RAJ/TS/58.0.0 (iv)	DATE : August 16, 2001

Sub: ISO – 14001- Recertification Audit by M/S DNV

The recertification Audit of Environmental Management system of WRPL was conducted at KAPL, Sabarmati, Viramgam, Bareja, Jamnagar, Vadinar and Gauridad during the period from 30th July 2001 to 3rd August 2001 by DNV auditors Mr. S.N.Goswami & Commodore Suri and given 5 observations. The station wise observations is detailed below

1. KAPL Sabarmati : No Observation or NC
2. Viramgam PS & T/F : One Observation
3. Bareja pump station : No Observation or NC
4. Jamnagar Pump station : No observation or NC
5. Vadinar pump station : One observation
6. Gauridad Pump station : One observation
7. Gauridad, Management : Two Observations

The Observations alongwith proposed corrective actions are enclosed herewith and marked Annexure I. It is requested that necessary actions may please be taken at your end for closure of NCs and forward us the status latest by 31/08/2001.

Encl. : as above

16/8/2

(R.K.Acharya)

CC : DGM(O), WRPL, Gauridad /DGM(O)KAPL/KNKPL – for kind information pl.
CC : : MNM , Viramgam (Sh.L.C.Saha) – AMR Viramgam.
SO&ME (Smt. Shiela Pillai) - AMR KAPL Koyali
TSM, Vadinar (Sh. H.Baindail- AMR- Vadinar)

Annexure - I

Status of Recertification Audit by M/S DNV conducted during 30th July'01 to 3rd Aug'01

sl no.	Department	Findings	Corrective Action
2/01	Viramgam	1. Waste oil is disposed off from engines is not entered in hazardous waste records. It is categorized as No-41 in Schedule I of the HW (M&H) Rule 2000. 2. Water Consumption cess returns are not being processed as required under Water Cess Act.	Record of lube oil disposed off during maintenance is to be maintained and informed to PCBs Water Cess to be paid as per PCB's guideline
2/02	Vadinar	House keeping near EG set No2 and compressor room was not satisfactory as there was water spillage/ logging and dirt/ scrap lying aruond accumulation. Oil spillage on floor was observed near Mainline pump MP-4	House keeping near DG Set and Compressor Room is being improved by cleaning / rmoving water spillage/ logging and dirt/ scrap. Oil spillages on floor near MP-4 is being cleaned.
2/03	Management (Gauridad)	Effective communication on EMS from Station In charge to downward is not evidenced, as there is no system of review of EMS performance at station level involving all concerned employees of the station.	Review meeting at the stations will be conducted regularly from Oct-Dec 2001
2/04	Management (Gauridad)	The EMS policy has listed (i) technology Up gradation (ii) optimum resource utilization (iii) sludge reduction and effective handling as objective. However, these objectives are not adequately reviewed in the Management Review Meeting.	The objectives will be reviewed in details in 2nd review meeting on ISO 14001 planned in Nov'2001
2/05	F&S (Gauridad)	Jockey pump kept in inoperable condition due to gland leakage problem since commissiong.	

INDIAN OIL CORPORATION LIMITED
PIPELINES DIVISION
SALAYA MATHURA PIPELINE
GAURIDAD

Indian Oil Corporation Limited
[illegible]
Vadodara
24 JUL 2000
RECEIVED

INTER OFFICE MEMO

From : M(S&EP) & MR ISO 14001, Gauridad	TO : DGM(O) Vadinar COM – Viramgam SOM – KAPL SBT./Bareja/ Gauridad OM – Jamnagar
REF : SMPL/RAJ/TS/58.0.0	DATE : July 18, 2001

Sub: ISO 14001 recertification audit by M/S DNV

The job of ISO 14001 recertification of WRPL has been awarded to M/S DNV vide our letter of even number dated 4th July 2001 for another three years. The recertification audit will be conducted from 30th July 2001 to 3rd August 2001.The detailed audit programme is given below.

Date	Time in hrs.	Station	Remarks
30/07/2001	0900-1200	Sabarmati	Audit of Sabarmati
	1200-1300		Lunch at Sabarmati
	1430 –1730	Bareja	Audit of Bareja, proceed to Viramgam & night halt
31/07/2001	0900-1330	Viramgam	Audit of Viramgam & Lunch
	1330-1800		Proceed to Jamnagar & night halt
01/08/2001	0900 -1130	Jamnagar	Audit of Jamnagar, proceed to Vadinar & lunch
	1430-1700	Vadinar	Visit to SBM, Vadinar & night halt
02/08/2001	0900 – 1130	Vadinar	Audit of station, tank farm & lunch
	1400-1600		Proceed to Gauridad and audit of MR & Night halt at Rajkot
03/08/2001	0900-1530	Gauridad	Audit of station, MR, lunch and closing meeting. Proceed back for Delhi.

DNV auditors Mr. S.N.Goswami & Commodore Suri, will be auditing the stations. You are requested to carry out preliminary checks on the availability of manuals, records, and compliance status reports, closure of old observations raised during the external and internal audits, updation of communication register etc.

This is for your information and necessary action please.

Encl.: as above

RKAcharya
18/7/2K1
(R.K.Acharya)

CC . MNM . Viramgam (Sh.L.C.Saha) – AMR Viramgam.
SO&ME (Smt. Shiela Pillai) - AMR KAPL
DMO Vadinar (Sh. S.A. Khan- AMR- Vadinar)
CC: DGM(O) WRPL/ DGM(KAPL & KNKPL). Koyali
CMNM/CFM/ COM/ SM(T&I)/SMTM/STRM / SHRM

Annexure 31: Community development programme and expenditure

INDIAN OIL CORPORATIN LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE

INTER OFFICE MEMO

KAPL/P&A/A/CDP-2001-2002/
DATE:07-05-2002.

FOR : CPAM, PL HO – Shri Yogesh Chandra, PL HO, Noida.

FROM : PAM, KAPL, KOYALI.

Sub : Submission of Community Development Programme 2001-2002 Report.

We request reference to your IOM No:PL/P&A/A/2.1 dated 29-04-2002 on the above subject.

We are submitting the Community Development Programme 2001-2002 report in the prescribed Performa for your kind information and further needful please.

We have already submitted Community Development Budget proposal for the year 2002-2003 vide our IOM NO:KAPL/P&A/A/CDP 2002-2003 dated 15-03-2002. The copy of the same is enclosed for your ready reference please.

(M.S. PARIKH).

Encl. As Above.

CC : SHRM(WR), Gauridad – kind information please.

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE
PO: JAWAHARNAGAR. DIST. VADODARA.

STATUS OF UTILISATION OF FUND UNDER CD PROGRAMME 2001 – 2002 AS ON 09-07-2002

Sl. No	FOCUS	Name of Institute	Items	Amount utilized
1.	Health & Medical care	Primary Health Centre, Navagam.	Room Cooler for Hospital	Rs. 10000=00
		Primary Health Centre, Akhdol.	Room Cooler for Hospital	Rs. 10000=00
		Primary Health Centre, Vadod.	1 Revolving Chair & 4 Nos. Chairs	Rs. 8000=00
		Sarvajanik Hospital, Kheda	BPL ECG Machine	Rs. 22500=00
2.	Expansion of Educaton	Primary School,Rampur	Musical Instrument, 2 Nos.Small Almirah	Rs. 7000=00
		Jilla Panchayat Primary School,, Oad.	Ceiling Fan 1 No. Asan patta 100 Nos.	Rs. 6000=00
		Jilla Panchayat Primary School, Pirana	Table 2 Nos. Chair 1 No.	Rs. 7000=00
	Clean Drinking Water	Pirana Primary School, Pirana.	Drinking water room	Rs. 50000=00
			TOTAL	**Rs 120500=00**

OTAL FUND SANCTIONED RS. 1,20,500=00

TOTAL FUND UTILIZED RS. 120500=00

इंडियन ऑयल कॉर्पोरेशन लिमिटेड
कोयली अहमदाबाद प्रोडक्टस पाइपलाइन

अन्तर कार्यालय ज्ञापन

संदर्भ : केएपीएल/पीएण्डए/ए/सीडीप्रो-2002-2003
दिनांक:15.03.2002

प्रेषक : उप का.व प्र. प्रबंधक केएपीएल कोयली
प्रेषिती :वरि. मानव संशाधन प्रबंधक (प. क्षेत्र) गौरीदड
घ्यानार्थ : श्री सुरेश नायर, का.व प्र.अधिकारी

विषय : सामुदायिक विकास कार्यक्रम - 2002-2003 के लिए प्रस्ताव ।

इस आ.का.ज्ञा. के साथ सामुदायिक विकास कार्यक्रम-2002-2003 के लिए प्रस्ताव भेज रहे है।

यह आप की जानकारी एवं उचित कार्यवाही हेतु भेज रहे है ।

(एम. एस. परीख)

संलग्नक : यथा उपर्युक्त ।

प्र.लि.: श्री योगेश चन्द्रा, मुख्य का. व प्र. प्रबंधक, पाइपलाइन्स, मुख्यालय, नौएडा

NOTE SHEET

KAPL/P&A/A/CD/2002-03 DATE: 14-03-2002.

Sub: **Proposal for Community Development Programme for the year 2002-2003.**

PL, HO vide their IOM No. PL/P&A/A/2.1 dated 05-02-2002 has advised us to submit the proposal for Community Development including SCP & TSP component for the year 2002 - 2003.

For this purpose, we have received proposals/requirements from various Schools, rural Health Centres, Gram Panchayat and other Institutes helping physically disabled children.

As per the PL HO Guidelines vide IOM NO:PL/P&A/A/2.1 dated 05-02-2002, 60% of the Allocation shall be made towards new projects/CAPITAL expenditure and balance 40% towards maintenance/revenue expenditure for maintaining the facility already provided by the Corporation during the previous years.

We have tried our best to comply with the provisions to maintain the percentage of allocation as per the PL HO Guidelines. However while framing the proposal we have also considered the proposals received from new locations enroute our Pipeline to gain mileage/public liaison in new areas and to cover rural public under Socially and economically backward communities. Regarding compliance to maintain percentage allocation of fund towards expenditure for maintaining the facility already provided by the Corporation during the previous years, we have allocated Rs 25000=00 in the extant proposal Moreover no proposals are received for repair and maintenance for facilities created under Community Development programme of the previous years

Accordingly the proposals are received and processed and finally the current proposal is framed out as follows:

As per the extant proposal for the year 2002-2003 we have allocated the fund based on the proposals received from Rural Schools, Rural Health Centres and other Public welfare Institutes

1	Clean drinking water	Rs 30000=00
2	Health and Medical Care	Rs. 39000=00
3	Expansion of Education	Rs 28000=00
4	Other Public Welfare	Rs 16000=00
5	Repair & Maintenance of Bus Stop (Constructed earlier)	Rs 25000=00
	Total	Rs.138000=00

As per the proposals received the brake up and detailed budgetary proposal is enclosed as Annexure-'A'.

The proposal is submitted for kind approval of PL. HO

(N K KOTECHA)
P&AO

Encl: as above

DMPA

DGM

INDIAN OIL CORPORATION LIMITED
KOYALI AHMEDABAD PRODUCTS PIPELINE

Community Development Programme – Proposal for the Year 2002 – 2003

l No	FOCUS	PROJECT	LOCATION	BENEFITS ARIES	METHOD OF EXECUTION	TYPE OF CAPITAL/R EVENUE	AMOUNT Required Rs.	REMARKS
	Drinking Water	Providing Bore well alongwith 2 0 HP Ele. Motor and Pipe for bore	Primary School, Gomtipura, Vadtal,Tal Nadiad	200 Students & 1500 Villagers	Direct	Revenue	30000=00	Beneficiary includes SC/ST boys & girls and Village people
	ansion of education	Providing 3 Nos. Wooden Table, 6 Nos Chair, 2 Nos Big Almirah and Science equipments	Jilla Panchayat Primary School, Girmatha Tal Dashkrai	216 students	Direct	Revenue	17000=00	Beneficiary includes SC/ST boys and girls
	ansion of education	1 wooden table, 2 Nos chairs, Black board	Primary School, Krushnagar Tal Jol, Dist Anand	100 Students	Direct	Revenue	3000=00	Beneficiary includes SC/ST boys and girls
	ansion of education	1 No Big Almirah, Educational equipments, Play equipments	Primary School, Dhobikui Pij Tal Nadiad	150 students	Direct	Revenue	8000=00	Beneficiary includes SC/ST boys and girls
1	th & Medical Care	Delivery Table 1 No Weight Machine 1 No Surgery Kit 1 Kit, Steel Kot 3 Nos	Rampur Gram Panchayat, Rampur, Nadiad Dist Kheda	3000 families	Direct	Revenue	10000=00	Beneficiary includes SC/ST/OBC families
1	th & Medical Care	ECG machine 1 No BP Instrument 1 No, Medical Surgical kit 1 KIT ,table 2 Nos	Primary Health Centre, Aslali	2800 families	Direct	Revenue	29000=00	Beneficiary includes SC/ST/OBC families
	ir & Maintenance	Repair & Maintenance of Bus Station already constructed earlier under CD Programme	Sokhada Gram Panchayat, Kakhada Matar, Kheda	1000 families	Direct	Revenue	25000=00	Beneficiary includes SC/ST/OBC families
	Other Public Welfare	Refrigerator220 ltr	Arpit, Vadodara	200 disabled children	Direct	Revenue	16000=00	For Disabled Children

CHEME WISE EXPENDITURE

lean drinking water	Rs 30000=00
ealth & Medical Care	Rs 39000=00
xpansion of Education	Rs 28000=00
ther Public welfare	Rs 16000=00
epair & Maintenance of Bus Stop(Constructed earlier)	Rs 25000=00
Total Amount	Rs. 138000=00

(M. S. PARIKH)
DY. MANAGER(P&A)